

Amateur Radio



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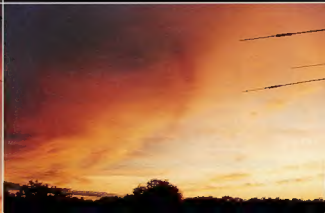
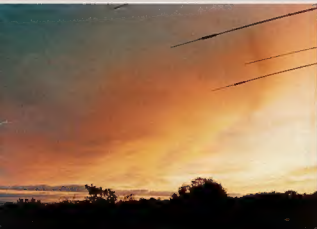
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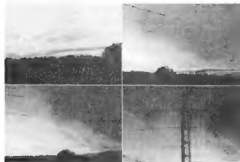
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FRONT COVER: Storm Brewing — These photographs were taken over a short period of time as a storm approached the beam at the QTH of Earl VK3BER, Frankston.

— Photographs courtesy Earl Russell VK3BER



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HAMADS should be sent direct to the same address, by the same date.

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Editor's Comment

HELP!

As mentioned in the account last month of the Federal Convention, there was discussion by a financial sub-committee of the current fortunes of this magazine. What it boils down to is that our present expenses exceed our present income and that things are getting worse!

We have two sources of income. The largest is the amount which you, the members, pay us from your subscriptions, in effect to buy your monthly copy of AR. In 1986 this was close to the budgeted figure of \$130 000. For 1987 it has been increased to \$130 000, and hopefully kept at that level in 1988. If in round figures you divide 130 000 by 8000 members and 12 issues a year the answer is \$1.35 per copy. That is what you are paying for your magazine. Two years ago, in the July 1985 editorial, we went through a similar exercise. The cost then was about 95 cents per copy. We can go back into other past financial statements and come up with figures such as 97 cents in 1982, 84 cents in 83, 88 cents in 84, and \$1.14 in 1986.

We are all too painfully aware that the price of everything keeps going up. Particularly over the last few years, prices have risen considerably faster than wages. Figures published in the Melbourne "Sun" on the day I write this, show rises over the period March '83 to December '86 ranging from about 25% for milk, meat and bread, through 50% for beer and tea, to 90% for fresh vegetables. Petrol has risen by about 30%. AR magazine in the same time has gone up (at most) by 36%. Unfortunately, few peoples' incomes have risen commensurately so our average standard of living is slowly falling. This is apparent from the responses already received to the May editorial, in which I discussed membership non-renewals. It's not so much that subscriptions are rising, as that peoples' ability to pay is falling. Incidentally the membership situation is not really quite as bad as it appeared in that editorial. Certainly many have dropped out, but others have joined or rejoined. The net overall loss of members seems to be around 200.

Our second source of income is advertising. In a good year, such as 1984, it brought in nearly \$49 000. But for various reasons, among which once again must be the customers' ability to pay, it has slowly fallen since, to about \$37 000 last year, and we expect only \$34 000 this year. Is there a

business in your area for whom the amateur market is still untapped? Tell them about AR. It may be just the advertising vehicle they've been looking for, with influential technically-qualified readers throughout Australia, and some overseas as well.

Now to expenses. Our biggest single outlay is for printing, followed by postage. Budget expectations for 1987 were \$85 000 and \$33 000, but both are set to increase more than expected. Cost of paper has jumped by 23% and postage will rise soon because Australia Post is now required to pay sales tax. Typesetting and production total about \$40 000, wrapping and addressing \$10 000, but no significant changes are expected here. Office salaries and expenses, and costs of drafting work make up the rest.

Do you see the problem? We must reduce expenses, or increase income, or preferably both. In doing so, we can't afford to reduce our standard of quality, as even more members are then likely to become ex-members! The suggestion made at the Convention was to revert to the single colour covers we used to have up to 1981. This would slightly overcompensate the rise in paper cost, but only if the cover paper grade was the same as the text. We could reduce paper quality even further. Neither measure is attractive.

There is another possibility. We could publish six issues a year, of 128 pages, instead of 12 issues of 84 pages. The only loss here would be in topicality. After all, the "Women's Weekly" is now a monthly, undoubtedly for similar reasons. What reasons? In our case, half as many expensive colour covers. Half as much for postage (although this may need slightly cheaper, lighter paper). Probably the various columnists and I wouldn't "rave on" for twice as long, so more room for technical articles, always your favourite reading.

All of these possibilities and more are on the agenda at the Executive meeting of May 26. I will leave space for a last-minute postscript to announce the decision.

Bill Rice VK3ABP
Editor

(P.S. The Executive was unwilling to cut back on the number of issues per year. For the time being, while all other possible avenues of cost-reduction are being investigated, it was agreed that we should change to 2 colour covers on the present glossy paper, but reduce the main paper quality. Hopefully, this should just balance the budget. 73, VK3ABP)

A REMEMBRANCE DAY LOG PROGRAM WRITTEN IN PASCAL

Without question, the most valuable aid an entrant in the RD Contest can have is a computerised log keeper.

John Drew VK5DJ
34 Aitken Street, Millicent, SA. 5280

GENERAL INFORMATION

The contact information is stored like this:

BYTE NUMBER

1 2345678910 11 12 15 16 17 18
13 14

band call sign mode no rcvd hrs mins

The number sent is not stored, that is inherent in the array counter. Because this version of Pascal packs arrays automatically, not all contacts occupy 18 bytes. The longest call I could think of was VK5ABC/P4 — nine bytes long. Most will occupy only five or six bytes. This meant a bit of fancy footwork when checking for sloppy operators (see above) and in the general dismantling procedure and costs a bit of time but not too much.

The band is stored as a single character. 160 metres is stored as char(160), two metres is stored as char(2), etc. Saves a little space!

There are other space savers that occurred to me, such as storing the time and no received in BCD. This could save a couple of bytes or so, but as it is not in the high speed section of checking, and I am never going to work more than 1500 contacts in the RD Contest, it was a bit academic. I might do it one day just for fun though.

A typical contact goes like this:

* TYPE VK3UM replies to my CQ RD
3UM <return>
machine checks call, band and mode
finds no dupe so puts up my number for him (105), his call in full and awaits my input of his number.
I give VK3UM my number (105), he gives me his (172).
* TYPE 172 <return>

Machine then reads the time and prints out the entry in columns under headings:

Time	Band	Mode	Call	No Sent	No Rcvd	Points
			Verified	Sent	Rcvd	
11:52	80	SSB	VK3UM 105	172	1	

and returns Main Menu ready for next entry. The program permits the operator to opt out of a contact at the point when it awaits the number from the other station. A <return> at this point abandons the contact, resets counters and returns to Main Menu.

Note, a typical contact requires typing a total of six or seven characters and hitting <return> twice. A scoring rate of three contacts a minute is a piece of cake (if the stations are there).

To convert this program to another machine, eg an IBM, all that should be required is to delete Procedures SETCLOCK, RUNCLOCK, GETCLOCK, GETTIME, TIMECHANGE and GETTIME. The last three will need to be rewritten to gain access to the inbuilt clock in the computer.

The machine code in-line statements of SETCLOCK and RUNCLOCK are written to suit the Z80 and the ports of the Bee.

You will have to supply the one second pulse to pin 24 of the RS232 socket to make the clock work and connect a parallel connected printer to the parallel port.

*With 500 entries you are just becoming aware of the delay between hitting return and gaining approval to continue. It checks to see if the call and the particular band already exist in memory. If they do, it checks to see if the mode was in the same category. If not it allows the contact to proceed. If it does find a dupe it beeps and puts up:

Band	Call Sign	No Sent	No Rcvd	Time	Mode
80	VK3UM 105	172	11:52	SSB	

If the calling station is unconvinced, providing him/her with the time and the number sent usually sorts out the dupe.

- The operator can change the time or the date. Normally, the computer looks after the time by means of the interrupt driven in-line machine code procedure RUNCLOCK. A one second pulse is externally derived from a crystal and out onto the clock pin of the reprogrammed RS232 port.
- This reprogramming and setting of interrupt mode is performed in procedure SETCLOCK.
- The time automatically updates at the bottom of the screen every second.
- Contacts can be altered later in case a mistake was made.
- Band and mode may be changed, immediate print or delayed print selected, contacts may be saved to disc (RD.DAT) and automatic creation of a back up file (RD.BAK), loading previous contacts at the start of a new session are other important facilities.
- Auto checking of entries is carried out; eg call signs may only have letters, numerals or a / within them. Numbers must be pure integers (foreign bits are not permitted). All letters are converted to upper case irrespective of keyboard entry.
- Call signs beginning with a number are assumed to be VK calls and have VK automatically placed as a prefix. Eg, if VK3UM calls me, I type in 3UM. The computer checks for VK3UM on the mode and band in use.
- However, the full call sign can also be keyed in and all the funny commemorative calls are also accepted.
- The machine displays my next number to send.
- Call signs are checked for sloppy operators. Eg, VK3SLOP identifies as VK3SLOP/P4 (portable 4) and calls you later without the portable suffix, the program needs to be able to spot this or a dupe could be missed.
- Faulty contacts can be deleted and become invisible, although it is possible to undelete them if necessary. It works by changing the band to '0' and subsequently checking for band '0' before other functions.
- Printing of each contact, keeps track of page numbers, score, scrolling of pages, last contact printed (if print is being held to save a second, or stop the noise) prints from certain contact numbers if required.
- By typing FINISHED it finishes off the log. A separate word processor file looks after the front page details.
- The program occupies 18k of program space when compiled and, in my case, runs under CPM in a Microbee (CIB).
- Just type RD to run it.
- All facilities are menu driven.

Although it is certainly helpful to have your contacts printed out for you, the most essential part of the process is to check for duplicates. Many of our better operators do this very well with dupe sheets and get to be very fast at it, or have a big family of helpers, however, there is no doubt that computerised is fastest and most accurate.

For several years now I have successfully used versions written in Basic and these programs worked very satisfactorily. Speed was always a problem or, if speed up techniques had been used, then memory usage became inefficient when call signs were broken up into groups. Towards the end of a long contest with, say, 400 plus contacts in the log, it could take up to two or three seconds to check. So early in 1987, I wrote a machine code routine to place the calls in memory and do the searching for dupes, at the same time, a complete rewrite of the Basic program was begun. (Those who have been programming for a while will know how messy a re-written Basic program can get).

The whole thing was lightning fast and I could see real potential. Around about then I discovered that there were some real languages out there that could do things only dreamed about by Basic or Assembler programmers. Turbo Pascal was the only way to go, said the write-ups and advertisements.

(Using the Eratosthenes sieve benchmark Pascal completed 10 iterations in 23.5 seconds, interpreted Basic takes about 2000 to 4000 seconds depending on which Basic — a speed factor of 100 in dealing with arrays and simple arithmetic). Still speed was only part of it. The power of Pascal resulting from its structure had to be played with to be fully appreciated. So I forgot about the corny old Basic/Machine code log program and set out to do it in Pascal. As can be seen from the accompanying printout, I managed to have a version up and running in time for this year's RD.

In essence, a Pascal program has a main program (usually located right at the end of the program) with a number of procedures (or sub-routines, if you like) defined beforehand. Each procedure is called by its name.

It is necessary to define variables before you use them so these appear at the beginning of the program, if they are global, (and apply throughout the program) or at the beginning of a procedure if they are local (apply only in that procedure). This turns out to be a programming advantage, especially when your documentation is as sloppy as mine! In retrospect, I should have made more efficient use of variables and used more local types.

It is not expected that everyone, or anyone, will want to copy the program as is, but maybe some of the ideas could help others. Anyway, it was my first 'bigish' Pascal program and it certainly works well. I am quite prepared to accept that it might be improved in a number of areas; eg next time I would use the RECORD structure for storing information about contacts rather than storing it in a string array — although it may not work better.

This is what the program can do when compiled in a 64k Microbee:

* It can store 1500 contacts with five or six kilobytes to spare.

[illegible]

THE PAST DIRECTION OF AMATEUR RADIO OR

AN EXPOSE OF THE TRUTH OF THE PAST AGAINST WHICH TO BALANCE THE FUTURE

Alan Noble VK3BBM

19 Willow Avenue, Glen Waverley, Vic. 3150

It was in the great days of the Beginning and at a time of the prominence of the Apple and in the place called the Garden State. The elders of the Illawarragoanapple Tribe, the name having been derived from a favourite saying and activity in those days, which they usually did and they multiplied, were gathered and they watched.

And it came to pass on a day that was dark with great clouds, they observed the great spark transmitter in the heavens. But they knew not what it was. And they wondered at it and were impressed. And all who watched and observed were amateurs for they did not have a professional income in those days. And they marvelled and wondered what could be done with it. But they could not touch it. And the great spark was accompanied by great noise audible even above their chatter so they could not hear one another speak. Even so it was intrusive upon them and they wondered at its power. And they called their times of observation of the phenomenon intruder Watch.

And generations passed as they marvelled at the great spark and wondered what could be done with it, for they could not touch it. But it came to pass, in the observation of the spark and the noise that accompanied it, there was a realisation that the spark was very fast and the noise was delayed and very slow, and they marvelled and saw that the eye was quicker than the ear and that speed conversion was in the heavens so they could both see and hear. And they wondered at it and studied it.

And they saw that sometimes the spark went up and sometimes it went down. And they studied it. And it came into evidence that about 50 percent of the spark transmitter discharge was in a downward direction, that being from the great cloud to the earth, and about half went from the earth to the cloud. And so was demonstrated the basic principle of alternating current. And the first scientific observations came into being in the minds of the amateurs. And it was recorded and they passed it to their children.

And it was observed that some of the 50 percent of downward discharges produced fire in certain places and under certain conditions. And they observed that it was good for it produced heat and smoke and they could smell it and touch it. And to cope with the knowledge that was being amassed by the amateurs came together and formed a Club to study the phenomena. And they wondered what could be done with it. And it was a small club and they all contributed and it was a success. And it was seen to be good. And they that did not contribute were sent into the wilderness where they languished 40 Friday nights. And the club of amateurs studied the phenomenon as a Club project.

And it was about that time a traveller came from the far corners of the earth . . . for the earth was flat in those days. And he brought gifts and he gave them a blanket. And the amateurs thought and studied the blanket and the great spark transmitter and the fire and the smoke. And they co-operated. Even so their ideas were integrated

in a new process called adding up. And they said to one another "Yes, that adds up." And others said, "Oh goannavanapple" and they argued and agreed and disagreed; and they were friends. And it came to pass one night, at a more social meeting where the amateurs were getting tanked on spring water and apple juice . . . for the brewery was out on strike because the month was December . . . and they were going around in circles in a sort of social oscillation (note origins here of the water cooled tank circuit), one of the amateurs spilled water on the blanket. In the process of trying to dry the blanket by the fire they discovered two things. First the blanket did not burn where it was wet and secondly, they could gather the smoke under the blanket. And so was born the theory of the Wet Blanket Inert Behaviour Syndrome, which theory was later to be developed further by the Romans and named "Status Quo." And they found by using the blanket they could control the size of the fire which produced the smoke . . . and by using a wet blanket they could control the emission of the smoke. And the fire was the Base, the blanket was the Collector and he who controlled the blanket was called the Emitter in those days.

And they made special fires called Signal Fires. And it was seen to be good. And the time came when it was seen that there were so many signal fires that nobody could see for smoke and the interference was so bad that it was necessary to allocate certain places and times when signal fires could be lit. And they appointed from among their number he that would be known as the Comptroller of Signal Fires. And he issued an Edict. And so was born the concept and practice of condition control and regulation.

And they made a common code so they could all understand, even when they waited smoke. And the code was known by all those who were waiters and it was known as the Common Waiters Code. And those who learned the code and became proficient in its practice came together and were admitted to the Amateur Smoke Waiters Society . . . colloquially known as the Interrupted Continuous Waiters or ICW mob . . . and later called Indians by a traveller called Christopher Columbus. And the Comptroller of Signal Fires recognised the Society and they researched. And all was good. And they realised what had been taught by their fathers about the great spark transmitter and the honour of the traveller who called them this new name, they came together and agreed that the great clouds that were in the transmitter should be called Columbus Clouds . . . and at a much later time a typographical error was made.

And it came to pass that new and varied codes came into being and were used by some, but not by others. And great was the number of the codes. And there was great argument and they could not understand one another, for they talked in different codes. And there were many voices in argument and controversy. And the voices grew as a tower. And the tower grew and its call sign was BA3EL, which has also been subject to misprint in more than one time.

And there came a traveller and he was a wise man for he had three heads . . . to accommodate the three hats he was wearing. And the traveller came out of a country called Victoria where there were more hats than heads and he was contributing to the balance of supply and demand. And the traveller addressed the elders of the Society and they spoke of the State-of-the-Art and the Ultimate Smoke Transmitter and of the Regulations and the

conditions for the proper gating of the smoke.

And the wise man with three heads spoke of a new blanket called "envelope" and he showed them how to use it to vary the strength of the wind under the blanket which contained the smoke. And it was able to make big wafts or little wafts. So they gave it a name and called it Amplitude Draught.

And he came unto them again and said they should use the valleys and the gullies and the troughs and the peaks that were around them. But they understood him not. And he told them to goannavanapple, which they did because their fathers had told them about it. And they multiplied. But it came to pass that he forgave them that did not understand. And he took them and showed the how to use the smoke in the valleys and the high peaks and the gullies. And how to use the V-shape and the U-shape . . . and the inverted V . . . to control the entry of the wind under the blanket with the smoke. And they saw it and they did it and they observed and saw the smoke and how it could be made wide or narrow. And they called it Double Side Draught and Single Side Draught.

And the Society grew and with it the knowledge was spread. And some left the Society for they were avaricious and they went to make money by broadcasting. But those that were left came together and they formed many clubs. And the clubs were spread across the nation. And the clubs came together and had counsel, one with another, and formed rules of conduct with the Comptroller of Signals. And they were happy.

And there came a prophet with a vision who was called a Courier. And the vision was a strange new code. And it was taken and used by the Amateur Smoke Transmitters Society to develop Harmonic Smoke. And it was good. And the Comptroller of Signal Fires arranged the allocation of the frequency of fires based on the new code which was named Harmonic Relationship. And for many years all was well, as it was a well kept secret from those in the community who might conclude that, where there is smoke there is fire.

But it came to pass that a group called the Digitalogists assembled all of the bits of smoke that escaped and they learned the secret. And they called it Squarawave. The Digitalogists studied the nature of this new smoke and found they could always produce harmonic smoke if they could make it come and go very quickly. And the Digitalogists boasted their superiority in that they could divide any number into any portion . . . and the Council of the Clubs knew of the saying "Divide and Conquer" and they were concerned. And they became alarmed at the possible dangers that would assail the traditional smoke signalers and the difficulties that would arise.

In the course of time many other Societies had grown in many distant lands and they had come together and formed a Smoke Signallers Union. And all of the Comptrollers of the different lands spoke together and with the Union. But the Council of the Clubs in the land of the Illawarragoanapple was weakened by a strange disease called lethargy. And it came to pass that the Council was infiltrated by the Digitalogists on the pretext of having the potential to provide more members interested in Amateur Smoke Transmitting. And the Comptroller sought the advice of the Great Council in that land, and it formed a Committee to study the matter which would affect the future of the Smoke Transmitters. But that is another story, as it is in the future.

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BUILDING BLOCKS REVISITED

— Part 3

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This, the third part of the series, covers the IF amplifiers and generation of the various control voltages.

MODULE 3 — THE IF AMPLIFIER

Figure 12 is the circuit of the module, while Figure 13 shows the placement of parts on the 6 inch x 1.5 inch (150 mm x 38 mm) PCB.

In addition to two stages of 8 MHz amplification (only one of which may be required, see later text) the module includes circuitry for setting the gain of the stage/s when used as a transmit amplifier. A miniature relay is used to select the appropriate control voltage source.

It should be noted at this point that, if the board is used in conjunction with the (yet to be described) filter unit, only the second of the two amplifier stages is necessary. In this case, the input is to the point marked 'X' in Figure 12 and all components to the left of the dotted line in Figure 13 are omitted. If the unit is to be used for some other purpose, then the facility to provide additional gain is available.

The 8 MHz amplifier/s use BF981 dual gate FETs. They were chosen for their very low noise capabilities and their ready availability, is added bonus.

The sources of the FETs are held at a fixed positive voltage by means of 3.3 volt zener diodes and their gate returns are also made to this fixed voltage point.

Control voltage is applied to gate two and is negative going. Under 'no signal' conditions the control line is set at seven volts (see description of the AGC generator later in this article) for reception and four to five volts for transmitting. The four to five volts 'no signal' level is set by means of RV1 on this module.

Any incoming signal (TX or RX) will cause the voltage on gate two to fall, so reducing the gain of the stage/s. At some point the incoming signal will cause the control voltage to be less than the fixed 3.3 volts on gate one and the stage will be cut off. When in the receive mode, the AGC action begins at very low signal levels, as low as possible in fact, but when transmitting, the ALC action is delayed by the zener associated with the inverting input of the LF356 operational-amplifier. The level at which the ALC starts acting is set by RV2.

The tuned circuits of both stages are damped down by the resistors across them and are therefore fairly broad in their tuning. They are included only to provide some degree of filtering of the out of band noise generated by any amplifier. The alternate method of limiting this out of band noise is a second crystal filter at the amplifier output. There is no doubt that this second filter is the ideal way to go, but it can be expensive. However, after the section on crystal filters has been covered, some readers may be tempted to add a post-amplifier unit.

Output is taken from the junction of the 150 pF and 1n5 capacitors. The impedance at this point approximates to the 50 ohms required by the product detector and the (yet to be described, but see Figure 1 in Part 1) transmit mixer.

CONSTRUCTION AND TESTING

Only a couple of points need highlighting, otherwise building the module is simply a matter of putting the components in the right place and observing any component orientation.

The leads of the BF981/s need bending at right angles to fit the holes in the PCB. The longer drain lead is bent 4 mm out of the case, whilst the other three leads are bent 1.5 mm out from the case.

On one side of the device case is the identification marking (which includes the device number BF981). The leads are bent, so that when the device is put into the board, this identification is face down to the PCB, whilst the blank side of the case faces upwards.

Coil L4 (and L3 if used) is wound off the board. The coil former is cemented onto the base-plate with Superglue® or another similar good glue.

Scrape and tin half-an-inch (13 mm) or so of one end of the wire specified. Put this tinned end in the (hollow) base-plate 'leg' indicated by the letter 'B' on the parts placement diagram Figure 13. Starting at the base-plate end, close wind on the specified number of turns and lock them in place with a small quarter-inch x eighth-inch (6 mm x 3 mm) piece of clear adhesive tape. Cut off any excess wire, leaving just enough to go through the 'leg' marked 'I' on Figure 13. Scrape and tin this end, push it through the 'leg' and solder in place. Put the coil assembly into the board, filing off any excess solder left on the legs. Check that the bottom and top of the windings are in the correct places. Thread the tuning slug about halfway into the former. Slip the screening can over the assembly and rock it a little to make sure the top of the coil form is sitting in the raised lip around the hole in the top of the can. The bottom edge of the can should now be resting on the surface of the PCB.

Solder the can earthing spalls to the board, checking that the assembly is still as it should be and finally solder the six coil legs in place.

To test the board and make an initial setting of the ALC operational-amplifier inverter, proceed as follows.

- Temporarily solder two equal sized resistors to the board. One between the AGC pin and earth, the other between the AGC pin and the +12 volts pin. The values of these temporary resistors is unimportant, only that they be equal. Two 15k, two 22k or two 10k will suffice as the idea is to put six volts on the AGC line.
- Temporarily solder a 51 ohm resistor across the two output pins and monitor this load resistor with the probe and meter described in Part 2.
- Apply power and inject some 8,000 MHz signal into the input pins. This can come from a signal generator or can be 'pinched' from the BFO described in Part 2.

- Adjust the signal input level until the probe meter just starts to indicate.

Then adjust the tuning slug for a peak reading on the meter. The IF strip is now more or less lined up, although final 'tweaking' will have to wait until the receiver is complete.

To set the initial ALC voltage, first temporarily earth the ALC (not AGC) input pin and then adjust RV1 until the reading at pin six of the operational-amplifier is 4.00 volts. This sets the initial gain of the device/s in the transmit mode. RV2 cannot be set until the transmitter is finished.

MODULE 5 — THE CONTROL BOARD

This module contains the receiving AGC generator, the S/output-meter with its associated switching, and a 800 Hz audio oscillator to provide a CW transmit signal and sidetone.

Figure 9 is the circuit diagram of the AGC generator and meter switching arrangements. Figure 10 is the circuit of the audio oscillator and Figure 11 gives the parts placement on the six inch x 1.5 inch (150 mm x 38 mm) PCB.

The AGC is audio derived and the input to the generator is taken from the top of the audio volume control, see Figure 2 Part 2.

Consider first the situation that exists under 'no signal' conditions.

There is no rectified signal applied to the gates of either the MPF102A or the MPF102B. The residual DC voltage across the 10k resistor in the source of MPF102A is 'nulled out' by adjusting RV3 until the voltage at the operational-amplifier output (the AGC voltage) is 7.0 volts. MPF102B is conducting and thus the 100k resistor, in its drain circuit, is providing a low resistance path to earth, for the gate of MPF102A.

As soon as a signal arrives at the input, it is amplified by the BC548/BC558 bipolar pair. This amplified audio then splits two ways. The 'lower' path is further amplified in a BC548 and rectified by the 1N914 so as to apply a negative voltage to the gate of MPF102B, thereby pinching it off. This pinch-off, effectively leaves the gate of MPF102A with a very high (20 megohms) resistance path to earth.

Simultaneously, the audio in the 'upper' path is rectified by the germanium diode and the generated DC charges up the 1.0 μ F capacitor. This DC is amplified by MPF102A and the voltage across its source resistor goes more positive.

This positive going voltage is inverted by the LF356 operational-amplifier causing its output (and the AGC line) to drop from the preset value of 7.0 volts, thereby reducing the gain of the controlled stages.

Consider now what happens when the input audio signal disappears (end of over, pause in speech, etc.).

The charge on the 1.0 μ F capacitor can only leak away slowly through the 20 megohm resistor and it would be many seconds before the full gain of the controlled stages was restored.

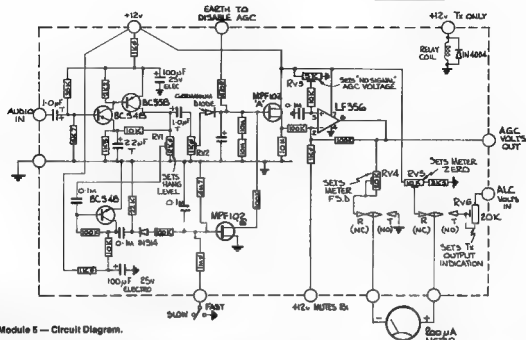
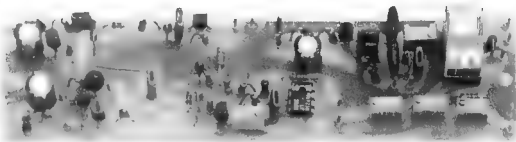


Figure 9: Module 5 — Circuit Diagram.

Notes:

1. All resistors 1/4 watt 5 percent
2. All trim pots 25 turn — top adjust triangular pin out, Spectrol Type 64Y



Module 5 — A.J.C.

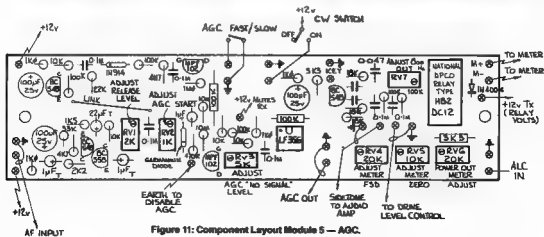


Figure 11: Component Layout Module 5 — A.J.C.

RD LOG FOR COMMODORE 64, DISC DRIVE & PRINTER

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5107

A timely log-keeping computer program for the RD Contest in response to comment by VK6YA in the Contest Column, February AR.

The program was written prior to the 1986 RD Contest when the writer was looking for a computer log program which would satisfy the requirements of making the contest enjoyable by doing all the duplicate call checking and also print out a log in the format as required by the contest manager.

Never having been an avid contest tender, the RD Contest somehow does have limited appeal. I have even neglected entering that in recent years as I lost the desire after entering a couple of them but found the log-keeping rather tedious — or to be more precise, the checking for duplicate calls became a grind after the first few hours. That was about seven or eight years ago and I have not bothered entering since then. In the last five or six years I have become interested in computers and there has always been an idea percolating in the gray matter that perhaps I could write a program which would "do everything" for me in the RD Contest and if I could write that program I would give the contest a try again.

So, what exactly did I want the computer to do? I wanted it such that all I had to do was enter a call sign and the computer would do all the required checking to ensure that the contact was valid under the rules and, if so, all that was required by me was to enter the QSO number. The computer would then send all the information off to the printer and a running log would be kept throughout the contest that just had to be placed in an envelope and sent off to the contest manager. This of course included the computer generated front sheet recording all the details regarding pages and scores, etc.

If reference is made to the sample log, it can be seen that everything required is included and all that is required of the operator is to enter the call sign, the received QSO number and place his signature on the front sheet. What could be easier!?

To write such a program that could only be used once a year would appear to almost touch on the absurd, to which I have no answer except I have done it simply as a personal project to give me a reason to sit at the computer other than to play games or have the occasional RTTY contact. I was a little worried about possible rule changes that would render the program obsolete after one year, but I see in a recent Contest Column that there is a push toward standardising the rules and leaving them the same as this year's contest. Another small problem is that the log has been limited to 500 contacts per category, but following recent RD Contest results, not too many have exceeded that amount.

For those competent in BASIC programming, it is obvious there are techniques used in this program that could only have come from a self-taught programmer. So, content yourself with the fact that, if you feel you could have written

better you would most certainly be correct. In some parts, the program is probably a little involved and could be classed as "going over the top" but it has slowly evolved over a few months and, as I think of another feature which I think may be fun to add, I have done so.

One very important fact to point out at this time is that I do not run the program in BASIC "as is" but run it through a compiler, such as *Petspeed* to speed the whole thing up. It has been found, with the log filled to almost its capacity of 500 calls, it only takes about 12 seconds to verify a call. Compare that to checking through a handwritten log and it seems insignificant.

LET'S LOOK AT THE PROGRAM

LINES 10-150 set the screen colour, display a title page and set arrays.

LINES 170-330 give the option of starting a new log from scratch or, if you have been working in the contest for a few hours and take a break, you can then load the unfinished log and continue in the contest without losing the previous entries.

LINES 380-460 sets or zeros variables as required.

LINES 510-610 are for entering the operators own call sign. There is some checks done on the call sign to try and ensure that it is entered correctly as far as the right alpha/numeric content is concerned. There is no facility to allow for "out of state" call signs, eg VK5AIB/8.

LINES 660-680 allow setting of the page length of the log. This is usually set by the distance between brackets on the paper and should not allow for gaps at the top or bottom of the page as this is taken care of in the program. There are 17 lines used in headers and spacing so if a number less than 17 is entered it defaults to 17. If no number is entered it defaults to 66 lines per page.

LINES 730-800 allow the contest category to be selected as per the contest rules. VHF and HF logs are not allowed to be mixed under the current contest rules so, once selected, the category cannot be changed.

LINES 850-940 If VHF has been selected the time between contacts is entered as this is the only restriction on VHF.

LINES 990-1060 allow the contest section to be selected. Phone and CW/RTTY logs cannot be mixed under the current contest rules so once selected, the section cannot be changed. However, within the Phone Section it is possible to select SSB, FM, AM or TV.

LINES 1110-1220 allow entering of the date and then displays it back to you to ensure you are happy with what you have entered.

LINES 1270-1370 allow the input of UTC and checks for valid numbers and then displays it back.

LINES 1390-1470 looks at the time and the operators call sign to determine if it is the first or second day of the contest in local time. This information is used for the date entry on the log sheet.

LINES 1530-1550 converts the contact number to a number with leading zeros as this seems to be the accepted method for log numbering. The numbers are used in the range 001 to 500. LINES 1560-1680 set the screen display that is used for each contact and displays the current contact number and the options available for

changing mode within a section, changing frequency or saving or ending the log.

LINES 1700-1800 allow entering the contact call sign. Checks are carried out to ensure the call sign has the correct alpha/numeric content and that it is a VK, P2 or ZL call sign as these are the only areas worked in the contest.

LINES 1820-2050 allows a new frequency and/or mode to be entered is desired but the frequencies and modes selected are limited to those allowed within the limitations of the category and section originally selected.

LINES 2100-2270 check for duplicate entries. These checks are per the contest rules and can be easily seen in the program for HF For VHF the call area check is deleted but a time check is included and this is the purpose of the contact time and current time being converted to minutes to allow for easy comparison. If the current time has just passed 0000 hours and the previous contact time was prior to 0000 hours, 24 hours (1440 minutes) is added to the current time simply for the ease of time comparison. Where both times are on the same side of 0000 hours, this does not apply.

LINES 2300-2380 allows you to either accept the contact or reject it. At this point, the contest is a legal contact but you may still not want to enter it in the log for a variety of reasons, eg sudden QRM or QRN causes contact to be lost so numbers cannot be exchanged or the other station cannot hear you as well as you hear them, etc. In this case you simply reject it and the program reverts to entering another call. LINES 2430-2510. If the contact is accepted you will then be asked to enter the contact number the other station gives and this must be in the range 000-999. Anything outside this range will not be accepted. The string variable is cleared prior to getting the next number so that, should an operator inadvertently hit the RETURN key instead of entering a number, it will be detected as an invalid number. If this is not done it will print the number from the previous contact. The total score is then incremented by one.

LINES 2560-2770 prints the page header if it is a new page. A check is made to determine if the date has changed since the last page. LINES 2790-2910 sends data to the printer for each contact made. Line 2880 has to be included prior to closing a print file when the printer is in the CWD mode (line 2550). This results in an unwanted line-feed so lines 2870 and 2900 are included to temporarily disable the auto line-feed facility.

Line 2950 will detect if the log has reached its maximum capacity and will automatically end the log and print out a front page.

LINES 3000-3180 prints a page footing if at the end of a page. If the log is "on" and only a part page is used it will form-feed the balance of the page and add the page footing on the correct line.

LINES 3260-3310 force a "garbage collection" every 20th contact to free-up memory of all the unused strings without this feature the computer will do it at some stage by itself but during that process the computer seems to go to sleep for a while until the process is complete. By doing it every 20th contact it takes less time, hence causing less inconvenience during the contest.

LINES 3360-3820 prints out a front page for the

log and allows you to enter your name and address. All relevant information is included on the front sheet and it only needs to be removed from the printer and the declaration signed. LINES 3870-3940 is a subroutine for flashing error messages when an incorrect entry is made. LINES 3990-4380 is the log saving routine so that if you wish to have a break from the contest you can save all the log and details including category and section, etc., to disc. This routine is accessed by entering "END" in place of a call sign and the option is then given of ending the log so that all entries are lost and a front page is printed or the option of saving the log to disc is offered so the log can be recommenced at a later time. It also includes a disc error trap so that, if you have a faulty save or forget to remove your write protect tab, etc, you will not lose your log. The routine will

provide its own name for the log saved. LINES 4430-4810 is the log load routine used when re-commencing an unfinished log. When re-commencing a log it will continue on as though the log had never been stopped as far as line spacing on the printer is concerned so that the printer should be set to continue immediately under the previous contact. As mentioned earlier, I run the program after compiling it with Patspeed to speed it up. Before running it through Patspeed it is necessary to do a few minor modifications to the routine to allow for the effect that the increased speed has on a few timing loops and also to remove a few lines of code which are not needed in the compiled format.

(1) Change line 90 to,
90 FOR A=1TO3000:NEXTA:REM DISPLAY
DELAY

(2) Change lines 3900 and 3920 to,
3900 FOR DL=1TO2000:NEXT DL
3920 FOR DL=1TO2000:NEXT DL

(3) Change to GOTO values in the following lines to the new GOTO values as shown,
2950—GOTO3040
3020—GOTO3310
3060—GOTO3130
4120—GOTO3040

(4) The following lines are to be deleted,
150, 2580, 2870, 2900, 2910, 3030, 3120, 3150,
3160, 3230, to 3300.

Remember these modifications should not be done if the program is going to be run "as is" in BASIC.

REMEMBRANCE DAY CONTEST 1987

CATEGORY:-----HF
SECTION:-----TRANSMITTING PHONE
CALLSIGN:-----VK5AIB
NAME:-----IAN BARTON
ADDRESS:-----38 HALIFAX AVE., PARAFIELD GARDENS, 5187.
TOTAL SCORE:-- 56

PAGE TALLY:	2	SHEETS	56	POINTS
	PAGE		SCORE	
	1		56	
	2		0	
PAGES	2	TOTAL	56	

DECLARATION

I HEREBY CERTIFY THAT I HAVE OPERATED IN ACCORDANCE WITH
THE RULES AND SPIRIT OF THE CONTEST.

SIGNED

18/02/1987

REMEMBRANCE DAY CONTEST 1987

CALLSIGN: VK5AIB
CATEGORY: HF
SECTION: TRANSMITTING PHONE
DATE: 18/02/1987

TIME(UTC)	BAND(MHZ)	MODE	CALL	NO.SENT	NO.RECVD	SCORE	TOTAL
1611	3.5	SSB	VK1YT	051	047	1	51
1611	3.5	SSB	VK2UJ	052	278	1	52
1611	3.5	SSB	VK9RW	053	278	1	53
1612	3.5	SSB	VK3MU	054	378	1	54
1612	3.5	SSB	VK1WG	055	078	1	55
1612	3.5	SSB	VK7BH	056	028	1	56

[illegible]

[illegible]

```
4150 PRINT(40:7) "([DOWN])(DOWN)PUSH SPACE BAR WHEN READY"
4160 SETAB:IF AB=" " THEN DTD4180
4170 GOTO4160
```

[illegible]

0420 0000 000000000000000000000000

```

4448 INPUT:IS,U,U,V,V
4449 IF U:2THEN GOTD4538 REN NO ERROR
4450 PRINTAB(1+1*(DOWN(RVOW))$ISK ERROR (RVOW) ",PRINTAB (INT 1+3 ,CN UB
"(DOWN)US
4451 PRINTAB(1+1*(DOWN(DOWN)USH SPACE BAR TO CONTINUE "
4500 GET AB IF AB(1) THEN GOTD4538

```

```

4530 JMPUT2,C,RMM AREA PAGE COUNT
4540 JMPUT2,C,RMM NO. SENT COUNT
4550 JMPUT2,C,RMM NO. SENT COUNT
4560 JMPUT2,C,RMM NO. SENT COUNT
4570 JMPUT2,C,RMM NO. SENT COUNT
4580 JMPUT2,C,RMM NO. SENT COUNT
4590 JMPUT2,C,RMM NO. SENT COUNT
4600 JMPUT2,C,RMM NO. SENT COUNT
4610 JMPUT2,C,RMM NO. SENT COUNT
4620 JMPUT2,C,RMM NO. SENT COUNT
4630 JMPUT2,C,RMM NO. SENT COUNT
4640 JMPUT2,C,RMM NO. SENT COUNT
4650 JMPUT2,C,RMM NO. SENT COUNT
4660 JMPUT2,C,RMM NO. SENT COUNT
4670 JMPUT2,C,RMM NO. SENT COUNT
4680 JMPUT2,C,RMM NO. SENT COUNT
4690 JMPUT2,C,RMM NO. SENT COUNT
4700 JMPUT2,C,RMM NO. SENT COUNT
4710 JMPUT2,C,RMM NO. SENT COUNT
4720 JMPUT2,C,RMM NO. SENT COUNT
4730 JMPUT2,C,RMM NO. SENT COUNT
4740 JMPUT2,C,RMM NO. SENT COUNT
4750 JMPUT2,C,RMM NO. SENT COUNT
4760 JMPUT2,C,RMM NO. SENT COUNT
4770 JMPUT2,C,RMM NO. SENT COUNT
4780 JMPUT2,C,RMM NO. SENT COUNT
4790 JMPUT2,C,RMM NO. SENT COUNT
4800 JMPUT2,C,RMM NO. SENT COUNT
4810 JMPUT2,C,RMM NO. SENT COUNT
4820 JMPUT2,C,RMM NO. SENT COUNT
4830 JMPUT2,C,RMM NO. SENT COUNT
4840 JMPUT2,C,RMM NO. SENT COUNT
4850 JMPUT2,C,RMM NO. SENT COUNT
4860 JMPUT2,C,RMM NO. SENT COUNT
4870 JMPUT2,C,RMM NO. SENT COUNT
4880 JMPUT2,C,RMM NO. SENT COUNT
4890 JMPUT2,C,RMM NO. SENT COUNT
4900 JMPUT2,C,RMM NO. SENT COUNT
4910 JMPUT2,C,RMM NO. SENT COUNT
4920 JMPUT2,C,RMM NO. SENT COUNT
4930 JMPUT2,C,RMM NO. SENT COUNT
4940 JMPUT2,C,RMM NO. SENT COUNT
4950 JMPUT2,C,RMM NO. SENT COUNT
4960 JMPUT2,C,RMM NO. SENT COUNT
4970 JMPUT2,C,RMM NO. SENT COUNT
4980 JMPUT2,C,RMM NO. SENT COUNT
4990 JMPUT2,C,RMM NO. SENT COUNT
5000 JMPUT2,C,RMM NO. SENT COUNT

```

[illegible]

CONTEST COMPUTER LOG

Dion Thomas VK2PD

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A computer program for the Commodore C-64, C-128, CBM 4032 and CBM 8032, particularly useful for the RD Contest, but indeed useful for any contest with minor modifications.

The program was initially written, six years ago, as a checking program for the RD Contest, so that duplication of call signs on the same band or mode of operation could be avoided.

When originally written, the author only had a Commodore 3016 and cassette recorder. Since then the program has undergone many modifications, and the author has acquired more computer equipment!

As well as checking to see if the same station has been worked before the program also checks to see if that station has been worked on other bands or using different modes, although it takes twice the time to check, as well as printing each contact in the format as required by the Contest Manager, etc.

There are saves and appends (adds to) a sequential file on disc which is very handy if there is a program crash (operator error) power failure, etc. You can reload all contacts to date from disc and continue, as well as have a disk record of the contest.

Those unfortunate enough not to possess a printer or have a disc drive, can still use the program for checking and write down their contacts after the contest: a cover by simply recalling them from the memory onto the screen is also possible to do a complete dump to a printer of all contacts during the contest or just far.

There are prompts at the beginning of the program to ask what colour writing (C-64 only), screen and border (C-64 and C-128 only), then how many lines to be printed per page, if you have a printer, if you have a disc drive, if you want a previous band check on a call sign or

not. It then asks you to enter two of the criteria, the band and mode. If a printer is available it then prints the heading onto the first sheet, then goes to the input stage and awaits entry of a call sign. When the call sign is entered, and if that station has already been worked, it tells you and will not accept it. If it has not been worked previously it then asks you to enter number received. As soon as this is complete it will pass it to memory, print it and append it to the disc file (if those facilities are available and have been chosen).

A word of warning to those who use the disc file — once a contest is finished you must either reformat the file or use another disc, otherwise the next contest you enter will append (add) to the last one, and if there is a need to recall them from disc you will not only have this contest's contacts, but the last one as well.

This program is written in very simple BASIC so anyone with a different computer and a little programming experience can adapt it to their computer with very few changes.

Note that lines 1300 and 1940 are different for the C-64, C-128 and 4032 (8032). The lines in the printout are for the C-64. For the C-128 they should be altered thus.

```
1300 DIMAS(2100)
1940 PRINT2001-NN" CONTACTS LEFT
MEMORY="FREI(1)
```

For the 4032 (8032) they should be altered to:

```
1300 DIMAS(760)
1940 PRINT751-NN" CONTACTS LEFT
MEMORY="FRE(0)
```

Line 2560 should be used for the C-64 only. The REMed statements can be omitted from the program when being typed in as they take up valuable memory space, which may be needed for other things.

The C-64 allows for about 1000 contacts, the 4032 (8032) about 750 and the C-128 over 2100.

Although the C-64 will 'hang-up' at times (first noticed about 600 contacts), it does resume after a moment, it is just necessary to be patient.

Checking of memory in the C-64 can be time consuming, especially after quite a few contacts. It is therefore advisable that, if it is to be checked, it should be left to quiet times during the contest.

For those with a printer, testing how many lines per page has to be done over two or three pages as the separating space to avoid perforations has to be taken into account. It also prints page 1 of ... incrementing each page. The heading is printed at the top of the page.

eg DATE TIME BAND MODE CALLSIGN NUM
SNT NJM RCD PTS

On the change of date, press the appropriate key and change the date. The new date will print when the next contact is printed instead of DITO (if) marks in the left column.

The criteria of each contact is CALLSIGN, BAND and MODE. If BAND or MODE is changed, do not forget to change it on the computer by pressing the appropriate key (indicated at the top of the screen).

If there is an error in the first key stroke, say 'I' is typed instead of 'B', it must be corrected by pressing the return key and beginning again. The remainder of the call sign can be corrected with the 'INST/DEL' key.

If the call sign is input incorrectly you can type a minus '-' at the number given input and start again.

Should the program crash type CONT 'return' and the program should continue. If it will not, the checking system is unserviceable unless you have a disc drive to reload the files from.

Instructions are all displayed at the top of the screen when the computer is ready for call sign input.

Anyone requiring further information may contact the writer, QTHR

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10 REMARK ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
20 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
30 REM ** TO HAVE MEMORY WHICH WILL BE USED FOR THE CONTEST
40 REM ** THIS IS THE ONLY WAY YOU CAN TRY TO FOLLOW THE PROGRAM MODES
50 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
60 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
70 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
80 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
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920 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
930 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
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960 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
970 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
980 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
990 REM ** DISK P THRESH V200 P=1 DISK P THRESH B N W 2222
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940 GETP1=1:PRINT:GOTO100
950 IF P1=1 THEN PRINT:GOTO100
960 IF P1=1 THEN PRINT:GOTO100
970 IF P1=1 THEN PRINT:GOTO100
980 IF P1=1 THEN PRINT:GOTO100
990 IF P1=1 THEN PRINT:GOTO100
1000 IF P1=1 THEN PRINT:GOTO100
1010 IF P1=1 THEN PRINT:GOTO100
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1110 IF P1=1 THEN PRINT:GOTO100
1120 IF P1=1 THEN PRINT:GOTO100
1130 IF P1=1 THEN PRINT:GOTO100
1140 IF P1=1 THEN PRINT:GOTO100
1150 IF P1=1 THEN PRINT:GOTO100
1160 IF P1=1 THEN PRINT:GOTO100
1170 IF P1=1 THEN PRINT:GOTO100
1180 IF P1=1 THEN PRINT:GOTO100
1190 IF P1=1 THEN PRINT:GOTO100
1200 IF P1=1 THEN PRINT:GOTO100
1210 IF P1=1 THEN PRINT:GOTO100
1220 IF P1=1 THEN PRINT:GOTO100
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1260 IF P1=1 THEN PRINT:GOTO100
1270 IF P1=1 THEN PRINT:GOTO100
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1960 IF P1=1 THEN PRINT:GOTO100
1970 IF P1=1 THEN PRINT:GOTO100
1980 IF P1=1 THEN PRINT:GOTO100
1990 IF P1=1 THEN PRINT:GOTO100
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1180 MEMO: L=0
1190 PRINT "END CONTEXT LOG VIEWED NEXT NO IS OF, RE, "
1200 PRINT
1300 PRINT "131 MEMO * CONTACT LOG MEMORY CHECK *
1400 REMARK ** TO HAVE TO MOVE TO OUR FILE TOGETHER HOW MANY CONTRACTS POSSIBLE
1500 REMARK ** HOURS COMPUTER MEMORY AND NAME VALUE (P L IN JUS 1181)
1600 PRINT
2000 PRINT "HOW MANY NUMBER ** LAST NO IS ** PAGE READING **
2100 PRINT "DISPLAY LOG ** * HARD COPY **
2200 PRINT "CRASH BAND ** NO MOD ** ** PAGE **
2300 PRINT "PRINTING LOG ** PRINTING **
2400 PRINT "*****GOTO 14
2500 PRINT "*****GOTO 14
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2700 PRINT "*****GOTO 14
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4100 PRINT "*****GOTO 14
4200 PRINT "*****GOTO 14
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9700 PRINT "*****GOTO 14
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9900 PRINT "*****GOTO 14

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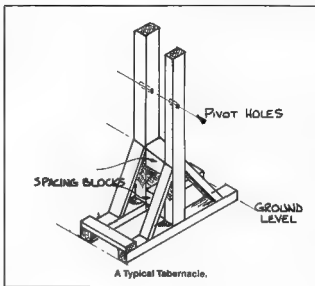
Aerials — Some practical aspects

WHAT IS AN AERIAL?

Ted Roberts VK4OI

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An aerial basically may consist of any length of wire, rod or tubing, mast or tower, metal sheet or designed aperture in a metal sheet or the skeleton version thereof, or a geometric shape, into which RF energy is fed, or, alternatively, from which RF energy is taken; ie transmitting or receiving modes.



A Typical Tabernacle.

The aerial may be a simple piece of wire of random length or it may be a very complex design of elements which are accurately determined and cut to size and space. It may be vertical, horizontal, or at an angle to either plane, or it may well be a helix. In the simplest case it may be a combination of some of these to take advantage of existing trees or other supports.

In the great majority of cases that interest the average amateur fraternity, the basic aerial will be derived from the horizontal dipole and be made of some convenient and available type of wire or tubing. Most beam aerials will be of the ready-made variety, particularly at HF. However, we still see some very fine examples of home-brew beams, but they do not come within the scope of this article. In any case, descriptions of such aerials are frequently accompanied with the construction details used by the author.

AERIAL GAIN

We are all familiar with the doughnut or toroid shaped radiation pattern of our old faithful half-wave dipole in free space, but a surprising number of amateurs are unaware of the effect that gain has on the radiation pattern and what is meant by the term gain when applied to an aerial. If we look at another old friend, the isotropic antenna, this presupposes a spherical radiation pattern with the isotropic antenna as a point source of energy at the centre of the sphere. Now this is a purely theoretical device, as no such antenna exists, but it is a very handy tool for the aerial designer.

If we imagine ourselves looking from this antenna to any point on the surface of the sphere, then the field strength will be the same at all points. If, however, we arrange a practical aerial to "illuminate" only one or two points of the sphere, then our practical aerial must have

gain in these directions by concentrating energy at these points. The point often overlooked by quite a number of amateurs and students for licenses is that this gain only exists at the expense of radiation in other directions. If we look again at our half-wave dipole, we see that it cannot evenly illuminate the full surface of the sphere, but concentrates most of its energy over a section of the sphere corresponding to the "fat" part of the doughnut radiation pattern. In the direction of the ends of the aerial, where zero radiation exists according to our radiation pattern, no illumination of our sphere takes place. Therefore, our dipole must have gain in the direction of maximum field strength. In fact, this gain is mathematically quoted as 2.15 dB over our isotropic antenna. It should be noted that our radiation pattern is three-dimensional, thus our dipole illuminates a belt around the centre of the sphere.

If we use an aerial of greater complexity and gain and investigate the results similarly, then a lesser portion of the sphere is illuminated by the signal from our new aerial being more concentrated, and a greater field strength exists over a smaller area of the sphere. This aerial has a gain "G" dB over our isotropic antenna or a gain of G-2.15 dB over our dipole. Now, if this aerial could also illuminate the remainder of the sphere to the original field strength, we would be getting something for nothing! Quite obviously the transmitter is not going to deliver any more power to the aerial so the extra field strength at the points of maximum gain can only be realised at the expense of reducing some areas of the sphere to less or no field strength at all. You can't get more out of the cake than first came out of the oven! To summarise, aerial gain in one or more directions can only be realised at the expense of other directions.

PRACTICAL CONSIDERATIONS

There are a number of ways of feeding a large variety of, more or less, complex aerials but it is not intended to describe these, they have been described in literature by more able pens and designers than yours truly. The intention is to consider means of hanging these aerials up and bringing the feeders back into the shack, and, hopefully, pass on some practical hints that may save some time and trouble for the newer members on the amateur scene. If you like the look of a hanging bedspread of a simple dipole or a thing with dog-legs all over the place, go for it! I will not comment on the performance, but hope to explain how to hang it up safely and connect it to the transceiver.

ERECTING AN AERIAL

There are a number of possible alternatives when it becomes necessary to elevate our new "U-Beut" antenna skywards. If you live in a VU-land or have access to a captive balloon of substantial dimensions, the problem is easily solved. Unfortunately, practitioners of the art of the Indian Rope Trick and balloons are few in this part of the world. In fact the latter would raise the ire of local government bodies, except perhaps in the Simpson Desert. So, this leaves us with the more usual means of hanging our aerial aloft.

Several things immediately spring to mind, such as the family homestead as one anchor point. Most suburban houses aren't quite high enough for the ideal, but can be quite effective if you don't intend to blast the birds off a DX station's antenna. Whether the local council is seen eye-to-eye with you on this issue remains to be seen. Please don't quote me as an authority, you are on your own in this field as individual local councils have their own regulations.

Such fittings as television J-mounts, ridge-mounts, and chimney fittings for those that aren't fortunate enough to live in the Sunshine State! can assist you to engineer a quite effective system.

Having disposed of one and of our wire (tentatively) we have now to think of the other end. It seems pointless to run it down to a fence post (although this will often work surprisingly well), so just look around for a convenient tree. If one is found in approximately the right position and it is considerably bigger than a shrub, you're well on the way to success.

Trees house birds like magpies, their limbs break off at the most inconvenient times and they sway around in the wind. Just to put luck with the magpies and use your calculator to estimate if the particular branch will support the critical mass (yours, of course). The one that will concern us here is the fact that the wind plays "Rock-a-bye baby" with the end of the aerial. To cope with this well-known phenomenon it becomes necessary to arrange a counter-weight method of support for the aerial. Continued straining and relief of the tension does not do the aerial any good. I don't think it would move the house at the other end, but something is going to give at the wrong place, such as when you are just into rare bit DX. So, don't forget that counter-weight, etc. Just tie the pulley securely to the tree and thread the halyard rope through the pulley and attach a counter-weight securely to maintain tension on the aerial.

GUYED MASTS

Some of us are gifted with a little more loot, or a larger desire to make our mark on the amateur scene than others, so we progress upwards toward the Ultimate Antenna System. There is no such animal as the National Debt would be able to purchase it, but there is no harm in trying. So the next rung up the ladder is one of two masts. They can be of either wood or metal construction: there are points in favour of each.

White ants blunt their teeth on metal masts and they don't suffer from dry rot. On the negative side, they can and do have an effect on the radiation pattern and efficiency of the system. Guy wires should be broken up into non-resonant lengths by insulators, as indeed, should guy wires on wooden masts. If you are prepared for unpredictable effects, you can neglect the insulators: something will happen! A metal mast should not be used to suspend a vertical aerial, but is quite effective as a support for a ground plane or the centre of an inverted Vee aerial. A supported boom is a short boom. If you use a wooden mast, please do not get it set with an undercoat and a couple of coats of paint or varnish and renew these regularly. After all, the price of a decent length of timber is very high these days! Such publications as the ARRL and RSCB Handbooks give several designs for wooden masts.

If your heart is set on a metal mast, then there are several factors to take into account. There are a number of telescopic television masts available, but they have limitations from an amateur's point of view. They are very satisfactory for the purpose for which they are designed, but are not the ideal masts for the heavier duty we have in mind. However, in heights of nine, or perhaps 12 metres, they can be used with limitations. Their construction is very light and they are intended to operate with a relatively light load acting in compression and with a small wind-load acting horizontally. The individual sections of the mast are not nested very deeply into each other and need a large amount of guying to achieve any degree of rigidity. If you live in a region which doesn't suffer from cyclones or strong winds they can make quite a viable proposition. I have

installed quite a number of these in Gladstone, Qld., with only one failure due to an eye-bolt fault. Mind you, these were used to support simple VHF aerials only.

If you intend making your own metal mast, you have several materials to choose from. Consider scaffolding or rigging aluminum alloy tubing if you can get it. It is costly, but a number of useful fittings are available to go with it. However, most of us will opt for the galvanised water-pipe type of construction. Whatever type of construction material is used, it is very desirable to use several sizes of pipe which will telescope one within the other. Start with three or four lengths of pipe, bury the top length of pipe approximately one-quarter of its length into the next larger size and securely pin or weld it in place. And so on, down the mast until you reach the bottom section. You can fit square guy wire plates which have been bored out to fit the pipe diameters you have selected for guying. Similar construction to television mast fittings are used. A large eye-bolt, fitted some centimetres below the top of the mast and bolted through the mast to attach the pulley can also support the top guys.

Alternatively, a number of "U" pieces of heavy rod may be welded near the top of the mast to carry the guys and also the pulley. Do not forget to cover the welding in your construction with galvanised paint to prevent rust.

You can make your mast using the pipe couplings supplied with the pipe as joining fittings, but it will be at the expense of reduced strength overall. This can be improved by welding the couplings to each section of pipe, but it will still be a weaker structure than recommended except for heights of no more than two lengths of pipe.

GUYING METHODS

Masts are normally guyed for rigidity and to take the horizontal loads imposed by strain from the aerial, the wind load on the aerial and the mast itself. Over nine metres high, it is good practice to guy the mast from several levels. A tall mast, guyed from the top only, can reach a condition where a type of standing wave develops along the length of the mast in certain wind conditions. This can cause failure and collapse of the mast when this condition becomes excessive. This increases tension with your wife and upsets the operator when the mast gains unauthorised entry into the shack. The addition of a second, or even third set of guys at intermediate levels prevents this vibration from reaching alarming proportions, if indeed it becomes evident at all.

When you use galvanised thimbles to connect your guy wires to the mast fittings, be aware that these rust badly after a few years and will require checking and probable replacement, even more quickly in a salt or industrially corrosive area. An alternative is to make your own thimbles from split copper, or stainless steel tubing, but I doubt if it is worth the extra effort. Another alternative is to use rope guys. This eliminates the need for insulators but there are problems with this method, too. Some ropes, such as nylon and polythene, stretch under tension. Polypropylene rope and terylene are quite good in this respect. Most ropes suffer from exposure to ultra-violet radiation in sunlight and eventually break down. Over the last few years this deficiency has been appreciated by the makers and a big improvement has been made in UV resistance. Do not overlook the fact that stranded galvanised wire will deteriorate with time also, particularly if the galvanised coating has been damaged, as by tools. Another "no-no" with wire guys is kinking the wire in the construction and,

erection of the guys. The same also applies for steel wire. Regardless of material, all guy wires and halyards should be checked regularly and replaced when wear is apparent. It should be routine to replace ropes every couple of years. Because guys are made of galvanised wire does not mean they are immune to rust or corrosion and they should be replaced when such faults are evident.

At this time it is advisable to consider how many guys are to be used around the mast. Many masts are erected using three sets of guys and are quite safe and effectively guyed. What I consider to be a better method is to use four sets of guys displaced 90 degrees around the mast. This uses more material, but makes for much easier and safer erection, particularly if you do not have much experience in this field. If two sets of guys are made up at right angles to the lay of the mast and made fast to the anchors, they will prevent the mast getting out of control laterally during the actual erection. This only leaves the pull from the front and the paying out of the rear guys to think about and is a much safer way to go.

GUY WIRE ANCHORS

The guy wires may be secured at the ground and by several methods. The guys may be anchored to "Star" pickets which have been driven well into the ground with the open end of the Y facing the direction of the mast, to offer the greatest resistance against being pulled out of the ground. If the load seems too great for one Star picket drive a second picket into the ground a few metres behind the first. The top of the first picket may then be welded to the bottom of the second, thus greatly increasing the load capacity of the system. If plenty of reasonable sized angle iron is available, it may be used in lieu of the Star pickets.

An improvement is to dig a hole in the ground at each anchor point. Make up a very large eye-bolt (of say 1/2 inch diameter steel) for each anchor and bolt these through substantial steel plates. Place the steel structure in the hole and fill the hole with concrete. It should not be necessary to point out that the metal structure should be slanted in the direction of the mast with the metal plate at right angles to the direction of strain.

Fence posts can be called into use if you are sure they will carry the load successfully. Another method is to dig a fairly deep trench in the ground at right angles to the lay of the guy and bury a large log with a heavy eye-bolt secured through the log and slanted in the right direction. Alternatively to the eye-bolt, a number of turns of galvanised wire can be used. The hole is filled in and the dirt firmly tamped down. The wire method is definitely not meant for long term use, as the wire will rust away fairly quickly.

The base of the mast can be supported by a wooden post approximately 4 by 3 inches (101 x 76 mm), or a steel pipe, or angle, or even channel section can be used instead. This post can be placed in a post hole and some of the spoil from the hole mixed with cement powder and a little water and the hole filled about one third full with the mix. This is then tamped down and the next third filled and tamped down completely to fill the hole and the very bottom. Do not forget to check that the post is plumb in each plane and water may not be necessary in the mix if the soil is moist. The mast is pivoted on a bolt fitted through a hole drilled in the post and another drilled a few centimetres from the bottom of the mast. Allow at least a week for the cement to cure before raising the mast.

A big improvement can be made by digging a fair sized hole in the ground and concreting a "tabernacle" in the hole. A tabernacle consists

of two posts parallel to each other and spaced to allow the mast enough clearance to pivot. A structure below ground level is attached to support the two posts, which may be of timber or steel. The tabernacle is fitted in place, trued up plumb, and the hole filled with concrete. Again, allow the concrete time to cure before attempting to raise the mast. This cement treatment has an added bonus in that it delays or prevents rot in the timber.

As before, the mast is mounted on a pivot pin or bolt through the whole structure. Remember that the only load on the base support of a guyed mast is the downward or compression load of the dead weight of the mast structure and a small part of the tension load, due to the guy tension. When the mast is being raised or lowered, however, the mast imposes a considerable sideways strain in the opposite direction to the way the mast is laying. Mast bases made of concrete have the added advantage that they can be built up above the ground in a simple box form and thus clear the back lawn or whatever, which makes for a lot less "cuss" words when you or your wife, or even the harmonics do the mowing. It is a good idea to ensure that the anchors are placed so that the mower can be used all around them if possible.

ERECTING THE MAST

To raise the mast, assemble the mast laying it away from the base support. Insert the pivot pin or bolt through the base support and the bottom of the mast. Rig all guy wires and the aerial halyard and pulley while in this position. Make off the side guys for lateral support during erection.

If a length of pipe or substantial timber is stood upright at the base of the mast and lashed to the mast base, then several pieces of rope are tied from the top of this "jury" mast to

the tip of the mast and to several intermediate points on the mast, then the mast may be hauled upright by pulling on another rope from the tip of the jury mast. This may be assisted by several "Indians" lifting from the tip of the mast and walking down the length of the mast until the load on the hauling rope is easily managed. If the back guys are fed through the eye-bolt at the rear anchor point, then these guys can be payed out so as to steady the mast during erection. This should be considered a potentially hazardous operation and treated as such. Hard hats and a wary eye on the progress of the erection are necessary and standing directly behind and under the rising mast are strict "no-no's" for obvious reasons.

The whole operation is one of simple and controlled use of the necessary force to raise the mast to the vertical, in theory at any rate. After passing through the 45 degree mark in the erection, the force required becomes much less and the pull may be slackened off and the jury mast itself manhandled until the mast is erect.

It is probably wise to insist that there be one, and one only, "Chief" and the rest of the crew be content to be "Indians" only. Otherwise confusion added to chaos creeth a crash! Once the monster is in its rightful place, adjustment of the individual guys can be carried out until the mast is plumb from all directions, and then the guy wires made fast permanently. If turnbuckles are used (a wise move) they should be tightened firmly but not excessively and some excess guy wire threaded through one eye, then the threaded portion and lastly through the other eye and tied to make the turnbuckle safe.

When the mast is secured, another hole can be drilled through the supports and the masts and another bolt fed through and tightened for greater security. You may need an extension rod welded onto your drill bit to do this.

It then remains to remove the ropes from the jury mast. There will be no need to strain up the masts if these ropes were a continuous length and were wound around the mast 10 or 12 times to connect them in the first place. By playing maypops and walking around the masts with the rope in the opposite direction to the way the ropes were coiled, you will soon have the ropes down.

It goes without saying that the halyard rope should have been rigged and the pulley fitted and greased before the mast was raised. The best idea is to make the halyard rope a continuous loop as otherwise you will have a large amount of rope at the bottom of the mast to dispose of somehow. I don't mean cut it off either, as you will then be in "heap big trouble" when you want to raise or lower the aerial. If you make a loop of the halyard you can tie a finger knot in one side of the loop leaving a small loop tied round a galvanised thumb to attach the aerial to.

The halyard is very easily made from the hollow woven rope which is so popular with water skiers. One end can be fed back inside the other for 30 centimetres or so and the outer section pulled tightly over the inner section. The rope will then pass through the pulley easily. If you prefer a more secure method, you only need feed the inner section back out again and then feed it back inside again a short distance further along the outer. To simplify feeding the inner section into the outer, it is a wise idea to heat the end of the rope with a match or cigarette lighter and mould it to a neat tapering end with the fingers. If your fingers are too soft and tender for this, I can guarantee they will be a lot tougher after all the preliminary work has been done!

Well, it is all in the cause of greater efficiency and, hopefully, more DX, so what more can you ask?

Gil Sones VK3AUI

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MODIFIED G5RV MULTIBAND DIPOLES

The G5RV-type antenna is very widely used by many amateurs. It offers multiband operation from a single antenna. This is even more important with the new bands.

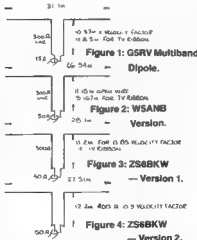
A new version was described in *Radio Communication* by ZS6BKW.

The newer band of transceivers rely on the antenna feeder having a Standing Wave Ratio under 2 to 1. They also are all 50 ohm impedance. To ensure optimum operation the antenna must use 50 ohm feed with an SWR less than 2:1. To be truly multiband this must occur on a multiplicity of bands.

The original G5RV was an attempt at a multiband antenna. The antenna was useful, particularly with transceivers which could match to a range of impedances. Recent transceivers, without variable tuning to match the feeder impedance, need a better match.

The G5RV is shown in Figure 1, and a modified version by W5ANB is shown in Figure 2. The original G5RV is below 2:1 SWR on the bottom of 20 metres and on 12 metres. The W5ANB modification is under 2:1 SWR on the bottom of 40, 17 and the top of 10 metres.

A new version has been described by Brian Austin ZS6BKW, in *Radio Communication*, August 1985. This version comes in two models and offers improved feedline SWR performance.



Brian ZL6BKW, arrived at the designs by computer analysis of the lengths and impedances. He was thus able to optimise performance. He then carried out tests at various heights and also, using both straight and inverted Vee configurations.

Two versions of the basic antenna are shown in Figures 3 and 4.

The inverted Vee configuration resulted in a drop in frequency of the lowest SWR. This was from 0.6 percent to two percent.

The frequencies where SWR was less than 2:1 were measured by ZS6BKW.

ANTENNA	FREQUENCIES IN MHz			
G5RV Fig 1	14 000	24 890		
	14 180	24 990		
W5ANB Fig 2	7 000	18 068	29 150	
	7 100	18 168	29 800	
ZS6BKW ¹ Fig 3	7 000	14 000	18 068	24 890
	7 100	14 340	18 168	24 910
ZS6BKW ² Figure 4	7 000	14 050	18 068	24 890
	7 100	14 340	18 168	24 990

Whilst the antenna will operate outside these ranges, an antenna tuner unit will be needed to reduce SWR to below 2:1.

The article in *Radio Communication*, contains extensive plots of SWR. The design approach is also explained in the article.

The G5RV articles in *Radio Communication* or the *RSGB Bulletin* as it was then known, appeared in July 1958 and in November 1966.

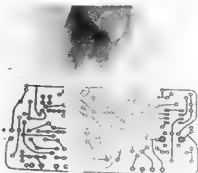
The ZS6BKW article, from which this *Try This* is derived, appeared in *Radio Communication* for August 1985.

USING TECH-200 FILM

Ivan Huser VK5QV

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In the March 1987 issue of Amateur Radio (page 14), I introduced a method of making printed circuit boards using plastic film as a transfer medium¹. Although the process outlined in the article can produce very good results, much better results will be obtained by using the film especially developed for the purpose.



AT THE TIME of writing this article, Tech-200 film was not available in Australia but negotiations were in progress and, by the time you read this, a local agent should be able to supply this film².

Tech-200 is a very smooth plastic film having a long shelf-life and is capable of withstanding temperature of up to 160 degrees Celsius. With care, quality boards can be made using a similar procedure to that described in the previous article. Access to a good photocopier and a domestic smoothing-iron is all that is required.

The process involves photocopying the PCB pattern onto the film and then transferring it to the copper laminate using a hot iron. The transferred toner becomes the resist and the board can be etched in the usual way.

ARTWORK

Although the artwork from your popular monthly magazine may be used, it will most likely have to be reversed before transferring it to the laminate.

This can be done by placing an intermediate transparency upside-down in the photocopier and running a second copy. During this reversal process, the lines tend to become broader and may even merge on layouts having very closely spaced lines. With care however, an acceptable copy can generally be obtained.

Better results will be obtained if you are starting from scratch and produce your own artwork as a component-side view which does not require reversing. This is easier than you may think as suitable drafting material is readily available from most electronic suppliers and it is generally easier to produce a component-side view than a copper-side view anyway.

PHOTOCOPYING

A photocopier that heat-fuses a toner onto plain paper is suitable, although I have found that some absolutely refuse to heat-fuse the pattern onto Tech-200 film. Instead of a nice hard image, a powdery facsimile results which is not suitable since the pattern will most certainly smudge when placed in contact with the laminate during the pattern transfer phase.

With this in mind, some experimentation will be necessary to gauge the settings most suitable for a particular photocopier. A good dark copy with a clear background and a hard image is required. When using Tech-200, the pattern may be reproduced on either side of the film.

Notes that the final quality of the PCB depends largely on the quality of the photocopy used. Any small blemish caused by a dirty roller, should be carefully removed using a

scalpel or sharp pocket knife before transferring the pattern to the laminate.

PATTERN TRANSFER

It is essential that the copper surface of the laminate is absolutely clean and dry before attempting to transfer the pattern. A suggested procedure is to thoroughly clean the board using a non-metallic scouring pad and then wash the surface with a PCB cleaning solvent. The board should then be handled with care to avoid further contamination.

The transfer process will require some practice to develop a satisfactory technique but this should be minimal if the steps outlined below are used as an initial guide.

- 1 Set the control knob on the smoothing iron to give a temperature of around 120 to 150 degrees Celsius. This was near the wool/ rayon setting on my iron (sorry, the wife's iron) but this may vary considerably between individual appliances.
- 2 Cover the cleaned laminate with a lint free cotton cloth such as a well-worn handkerchief and warm the entire board with the iron. Remove the handkerchief.
- 3 Carefully place the film (toner side down) onto the warm laminate and cover with the handkerchief. Apply the iron with a firm pressure and carefully smooth the entire surface until the temperature of the board is close to that of the iron. This takes around 30 seconds or so.

Particular attention should be paid to the edges of the pattern being transferred to ensure it is heated sufficiently.

If the plastic film tends to slip during ironing, it is suggested that a small amount of double-sided "sticky-tape" be used to hold the film onto the laminate.

- 4 With Tech-200 film, it is essential that the film is removed when cold. In fact, once a reliable technique has been developed and you are sure that the toner has adhered to the laminate, the plastic film need not be removed until just prior to etching.

Start from one corner and carefully peel the film from the board. If the pattern has not fully adhered, let the film return to its original position and repeat the transfer

heating process. Any small imperfections in the transferred pattern can be touched up using a resist pen before etching. Incidentally, if the pattern transfers to the handkerchief instead of the laminate, you had the plastic film upside-down!

ETCHING

There is no restriction on the etching agent and your favourite solution should be satisfactory. A short etching time should be aimed for to reduce the problem of under-cutting.

Once etched, the board can be rinsed in water and the remaining resist removed using a solvent. Finally, the board can be sprayed with a PCB lacquer.

FINALE

If the Tech-200 film is used correctly, all of the toner should come away from the film and be deposited as resist. This means that provided that the film has not stretched too much during the pattern transfer stage, the Tech-200 film should be able to be used more than once.

If it is desired to make just one small board, a small piece of Tech-200 can be attached to a sheet of copy paper using double-sided "sticky-tape" and run through the photocopier.

NOTES

- 1 No Fuss Printed Circuit Boards — *Amateur Radio*, March 1987, page 14.
- 2 South East Electronics, Odeon Plaza, Mount Gambier, SA 5290.

REFERENCES

- 1 No Fuss Printed Circuit Boards — *Amateur Radio*, March 1987, page 14.
- 2 Making Printed Circuit Boards — *Radio and Electronics World*, November 1985.
- 3 TECH-200 Technical Bulletin — The Meadowlake Corp.
- 4 Printed Circuit Handbook C.F. Coombs.

Tech-200 PCB Film is now available from South East Electronics, Odeon Plaza, Mount Gambier, SA 5290. Please contact them for further information about this product.

SIMPLE SPEECH PROCESSOR

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This processor uses two integrated circuit packages and requires little effort to construct.

A **SPEECH PROCESSOR** is a device which modifies the speech waveform, so that components which convey most of the speech intelligence make better use of the modulation capabilities of the transmitter.

In the device described, two processes are involved. The first is to shape the frequency response so that the gain increases with frequency increase over the speech range. Much of the speech intelligence is provided by the high frequency components which are lower in level than the low frequency components. The corrected response increases the level of the high frequency components so that they represent a higher proportion of the average speech power to provide a typical crystal microphone type response. Any old

Figure 2 — Compression Characteristic.

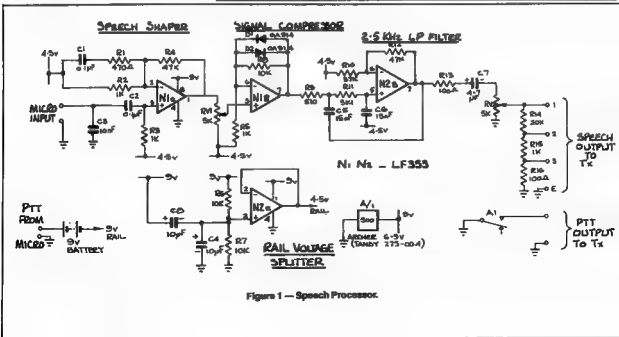
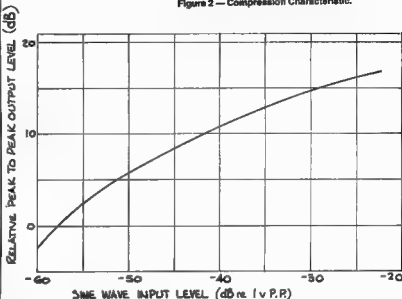


Figure 1 — Speech Processor.

5 DB/DIV

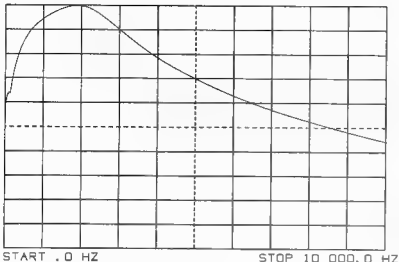


Figure 3 — Frequency Response.

time radio amateur will tell you that such response is better to copy in the presence of QRM or noise.

The second process is to compress the peaks of speech so that the average level of speech and hence the average modulation level, is increased. The process causes some degradation of speech quality and the amount of compression is governed by how much quality one is prepared to sacrifice.

OPERATION

The circuit of the processor is shown in Figure 1. Amplifier N1-A provides the frequency response correction and raises the level sufficient to drive the speech compressor. The frequency sensitive networks are C2, R3, and C1, R1, R2.

Amplifier N1-B provides signal compression. At low levels the gain is 11, fixed by the ratio of $(R5 + R6)$ to $R5$. As the instantaneous signal voltage is increased, the diodes D1 and D2 conduct and shunt R6 with a resistance value which is roughly an inverse exponential function of the instantaneous voltage across N1-B output. Decreased resistance across R6 causes decreased gain of the stage and hence compression of the signal waveform. Potentiometer RV1 controls the degree of compression and is set to suit the level amplified from the microphone. Figure 2 shows the compression characteristic, its relative peak to peak output level as a function of sine wave input. Plotted data is for RV1 set at maximum.

Since the output waveform is distorted, harmonics are generated and higher orders of these must be reduced to prevent them generating undesirable sideband components in the modulation process. This function is carried out by N2-B, connected as a second order Chebychev low pass filter with a cut off frequency of 2.5 kHz. Figure 3 illustrates the overall frequency response of the speech processor. The falling response above 2 kHz is due to the filter. Below 2 kHz, the response falls due to the shaping by N1-A.

OPERATIONAL AMPLIFIERS

Dual JFET operational amplifiers type LF353 were selected because they use the small eight pin DIL package but there is no reason why the dual u747 could not also be used or perhaps the quad LM324. The only problem with the quad package is the difficulty in mounting the large number of R and C components all around the one package.

DC SUPPLY

The unit, as constructed, is powered from a small nine volt battery. The battery is connected via the microphone PTT circuit so that the battery only supplies current while transmitting. The PTT is transferred to the transmitter via relay A. (If the processor were fitted

permanently in the transmitter cabinet, the transmitter power supply could be used and this relay circuit would not be needed.) A half voltage power rail is provided for the processing amplifiers by source follower stage N2-A.

MECHANICAL

The unit, as originally assembled, is hard wired on matrix board, the layout of which is shown in Figure 4. The board, complete with battery, is mounted in a 104 x 60 x 46 mm Dick Smith alum. box.

The layout is not critical, but to guard against the possibility of RF feedback from the transmitter back into the microphone circuit shielding is made continuous right through from the microphone, via the processor box, to the transmitter and earthed only in one place at the transmit end.

PRE-SET ADJUSTMENT

The degree of compression is set by RV1 to suit the microphone output level. One way to observe the compression is to monitor the levels at pin 5 and pin 7 of N1-B with a dual trace CRO. The sensitivity of the CRO is set so that the input from pin 5 is 10 times that from pin 7. At very low speech levels the displayed amplitude of the two waveforms should be similar. As the speech level is increased, the waveform at pin 7 should compress as compared to that at pin 5.

A more objective test is to record speech on a tape recorder for different settings of RV1 and play back the result. As the listener listens up to the individual to decide how much distortion is tolerable and whether a point has been reached where intelligibility is being impaired rather than being improved.

Output taps 1, 2, and 3, and RV2 provide for a wide range of output levels. For the usual transmitter input, designed for a moving coil microphone, tap 3 should be used. If it is necessary to feed one of those old transmitters with input designed for a carbon microphone, tap 1 is more suitable.

In conclusion, the old warning about using speech processing on SSB transmitters is given. The processor raises the average level of power in the speech and hence the average power dissipation in the transmitter power amplifier stage. If the PA stage is designed to the limit, on the basis of normal speech, indiscreet use of the processor could exceed the PA rating. There should be no problem with FM or straight AM.

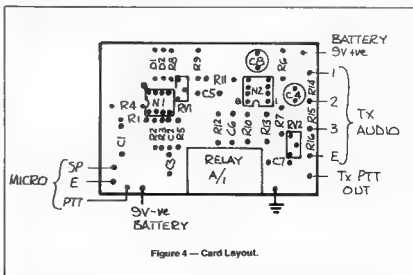


Figure 4 — Card Layout.

THAT UBIQUITOUS 2π

Dudley Stalker VK3KJ
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The Inductive Reactance of a coil is
 $2\pi fL$ ohms

The Capacitive Reactance of a capacitor

$$X_c = \frac{1}{2\pi fC} \quad (\text{in ohms}).$$

where f is frequency (Hertz)
 C is capacitance (Farads)

The resonant frequency of a circuit

$$f_r = \frac{1}{2\pi \sqrt{LC}}$$

where L is inductance (Henry)
 C is capacitance (Farads)

and so it continues

Many of our examination candidates can quote these expressions, and substitute data in them to achieve a result. However many of them, no doubt, sometimes wonder why the ratio of the radius of a circle to its circumference appears so often in formulae dealing with electrical phenomena.

The following may be helpful to some candidates when confronted with questions involving 2π .

Perhaps the first step is to become familiar with the concept of angles expressed in radians instead of the familiar degrees. By definition, one radian is the angle subtended at the centre of a circle by an arc on the circumference equal in length to the radius.

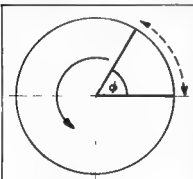


Figure 1.

$$Q = \frac{\text{arc length}}{\text{radius}}$$

(Note 1 radian = $57^\circ 17.74' 57.29''$.)

Note that it is the arc of the circle, not the chord, which is equal in length to the radius. In other words, if we lay a length of string along the circumference equal in length to the radius.

Referring to Figure 1, we now imagine the radius with the arrowhead free to revolve about the centre in the direction shown. Since, in making one revolution, the arrowhead traverses the circumference, it must cover 2π times the radius in returning to its starting point. The angular distance covered is therefore 2π radians.

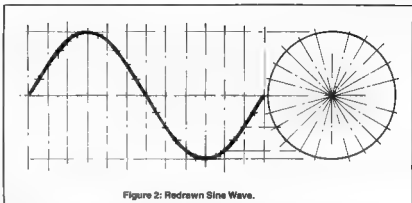


Figure 2: Redrawn Sine Wave.

Well, so what? How does this relate to resonant frequencies, etc? Good question!

Well, taking a horizontal diameter as reference, let us plot the position of the revolving vector (called a radius vector) against time. The result? A sine curve, since the ordinates of the curve at any instant are equal to the radius multiplied by the sine ratio of the angle between the horizontal and the radius at that instant.

So far so good, but we still have to relate this to electrical formulae. This involves relating the angle ϕ to some electrical equivalent.

The next step is to consider the radius vector revolving continuously. Since it sweeps 2π radians in one revolution, if it revolves N times per second, it sweeps out $2\pi N$ radians per second. The total angle swept out in any given number of seconds is therefore given by 2π times the number of revolutions per second times the number of seconds. This gives the familiar $2\pi fT$, which we now see as an angle.

Since one revolution corresponds to one cycle of a sine wave, and the amplitude of the sine wave is radius times sine ϕ , at any instant, we can now apply this information if we consider a voltage or current of sine waveform. We can call our radius vector V_{\max} or I_{\max} , and calculate the instantaneous value at any given instant.

As an example, let us take a sine wave voltage of maximum value 10 volts and frequency seven megahertz. What is its value after one sixth of a second?

We may write $v = V_{\max} \sin 2\pi fT$, where v is the instantaneous voltage. This becomes

$$v = 10 \sin (7 \times 10^6 \times 2\pi \times 1/6)$$

Looks formidable, but it is really quite simple. The

$$\frac{2\pi \times 7 \times 10^6}{6}$$

is the number of radians swept out in one sixth of a second. Since 2π radians = one revolution, the number of revolutions is

$$\frac{7 \times 10^6}{6}$$

Dividing the 7×10^6 by 6 (a pocket calculator is handy), we obtain 116 666.66... The 116 666 represents complete revolutions, which would

only return the radius vector to its starting point. We need only take notice of the 0.66... which, as a fraction is two-thirds. Reverting to degrees, two-thirds of 360 degrees is 240 degrees. So the instantaneous voltage is

$$\begin{aligned} 10 \sin 240 \text{ volts,} \\ = 10 \times (-0.866) \\ = -8.66 \end{aligned}$$

We have now established the significance of 2π in an electrical context. Now for inductive reactance.

The back EMF developed in a coil in which a current i is flowing may be written as $L di/dt$, where L is the coil inductance, and di/dt is the rate of change of current. The minus sign indicates that the back EMF is 180 degrees out of phase with the applied voltage.

Writing $E = -L di/dt$ if i is a sine wave current, we can write

$$E = -L \frac{d}{dt} (\sin 2\pi fT)$$

We will accept the result of differentiating this expression with respect to time, which gives

$$E = -L (2\pi f \cos 2\pi fT)$$

Dividing both sides by

$$- \cos 2\pi fT,$$

we have

$$\frac{E}{\cos 2\pi fT} = 2\pi fL$$

This is of the form of E/I , which by Ohm's Law is an impedance. $2\pi fL$ is therefore an impedance which, in this case is defined as inductive reactance.

In the same manner, the capacitive reactance of a capacitor may be obtained.

We write

$$V = Q/C$$

where Q is the charge on a capacitor, V is the instantaneous voltage, and C is the capacitance. Since current is the rate of change of charge, we can differentiate both sides of the above expression with respect to time.

If the voltage is of sine waveform, we can write:

$$\frac{d}{dt} (V_{\max} \sin 2\pi f t) = \frac{1}{C} \frac{dq}{dt}$$

Since

$$i = \frac{dq}{dt}$$

$$\frac{d}{dt} (V_{\max} \sin 2\pi f t) = \frac{i}{C}$$

The result of differentiating this is:

$$V \cdot 2\pi f \cdot \cos 2\pi f t = \frac{i}{C}$$

Dividing both sides by $2\pi f$

$$V \cos 2\pi f t = \frac{i}{2\pi f C}$$

Dividing both sides by i gives

$$\frac{V \cos 2\pi f t}{i} = \frac{1}{2\pi f C}$$

Again, this is of form E/i which in this case is defined as capacitive reactance.

In both cases, it should be noted that the expressions are strictly true only if currents and voltages are of sine (or cosine) waveform. Now for resonant frequency.

This is defined as occurring when inductive and capacitive reactances are equal

$$2\pi f L = \frac{1}{2\pi f C}$$

Cross multiplying, $4\pi^2 f^2 LC = 1$

$$f^2 = \frac{1}{4\pi^2 LC}$$

And taking square roots

$$f = \frac{1}{2\pi \sqrt{LC}}$$

Since $2\pi f$ appears so often in calculations, it is often shortened to the Greek letter omega, which in lower case is ω . So, if you see an expression

$$i = I \cos \omega t$$

you know it represents the value at any instant of a current of maximum value, I , multiplied by the cosine of the angle $2\pi f t$

Thought for the Month

Beware of the man who slaps you on the back — he may be trying to make you cough up something.

MARKINGS

A NEW VHS TAPE marking technology has emerged from Japan called "CTL" which allows you to easily mark and find dozens of points on a tape.

An indexing track will be built into most VHS tapes for use with CTL equipped video cassette recorders.

WILLIS AIR-WOUND INDUCTANCES Tinned Copper Wire on Polystyrene Supports

TYPE	GAUGE	LENGTH	TP	IND ohms	SWG	PRICE
1-08	1/8"	3"	8	2.50	19	\$2.12
1-16	1/8"	3"	16	5.00	21	\$2.12
2-08	1/4"	3"	8	2.70	19	\$2.50
2-16	1/4"	3"	16	8.00	21	\$2.50
3-08	3/8"	3"	8	2.30	19	\$3.05
3-16	3/8"	3"	16	10.50	21	\$3.05
4-08	1"	3"	8	4.80	19	\$3.38
4-16	1"	3"	16	19.90	21	\$3.38
5-08	1 1/4"	4"	8	9.40	19	\$3.76
5-16	1 1/4"	4"	16	37.50	21	\$3.76
8-08/4	2"	4"	8	—	19	\$5.45
8-16/4	2"	4"	16	32.25	19	\$5.45
8-12/4	2"	4"	12	—	19	\$5.55
8-16/4	2"	4"	16	83.50	19	\$5.55
8-08/7	2"	7"	8	—	19	\$9.45
8-10/7	2"	7"	10	60.80	19	\$9.45
8-12/7	2"	7"	12	—	19	\$9.95
8-16/7	2"	7"	16	157.75	19	\$9.95

WILLIS Air-Wound Inductances are a high quality product manufactured to the requirements of professional in the electronic field.

The coils listed above are classed as 'Built Inductance' and are intended to be grained for individual requirements. Complete coils can be used of course, if the total inductance is the value required.

The inductance values shown are approximate allowing for any variations in wire gauge and other small manufacturing variables.

Take the hard work out of Coil Winding — use "WILLIS" AIR-WOUND INDUCTANCES

WILLIAM WILLIS & Co. Pty. Ltd.
38 Canterbury Road, Canterbury, Vic. 3126.
PHONE: (03) 836 0707

CHESS AND AMATEUR RADIO

CARI — CHESS & AMATEUR RADIO INTERNATIONAL

Star Trek Captain James Kirk's famous line, "... to boldly go where none have gone before" sums up the way we felt about establishing an international organisation of chess-playing radio amateurs.

You see, several past groups had tried to organise, only in the US, but at this time only informal groups remain, and they come and go. Although the line is still out on CARI after five years of dedicated effort by many of its members, and although we have an active Oceania chapter, the next few years will tell because that's when sunspot cycle 22 moves in on our benefit

CARI was formed in 1982 following my article in *CO Magazine* (Mar 1982) which included a cover photo of my son Jim WAZJRN, in radio-chess with Mike Sakarias VK3KE, in Alaska. That article brought in several joiners including our first VK, Kevin Moore VK3ASM.

Previously, one might say the real spark to CARI's takeoff had been my letter to the editor of *Chess Life* journal of the US Chess Federation. I had written to ask if any of their radio amateur members might wish Jim for radio-chess, as he was having a terribly difficult time finding chess players on the bands. When that letter was published, many wrote to ask that we organise them.

And so we did, starting something. I had no idea what would be its logical conclusion, but we've had a lot of fun in the process, particularly when

our members set up matches with children who like chess, letting them play other children across the country. Or, when the band conditions were good, our own version of America's Cup, Chess Version. (We've had two such already.)

Or, our letter in Russian to Box 88, Moscow, asking if they'd like to meet us on the air for radio-chess. Why not? After all, not everyone in Russia drinks vodka. But chess? You bet. Still they responded (a milestone in itself) with a 'nyet', although the tear stains on the letter suggested a defector or two might any day appear on our doorstep asking how to join CARI.

And we've helped Australian amateurs a bit because up until CARI there had been a VK restraint against radio chess, perhaps due to some outlandish notion of its 'secret c'phers.' A letter to ARRL President, Dave Sumner K1ZZ, resulted in a letter supporting WIA in negotiations with DOC. This soon resulted in recognition of the impractical nature of such restrictions and from that point on chess has been blessed and approved for VKers.

Whether you play chess or not, we think you might agree there's something to this CARI thing that might prompt you into joining now, while we are on the very upswing of an exciting cycle. For CARI information, write to: Craig McMillan VK3CRA, 5 Sunview Court, Dingley, Vic. 3172. Please include an SASE.

—Contributed by Vince Luciani K2VK, CARI Founder/President

THE STAR HF RESONANCE INDICATOR

Bill McLeod VK3MI

42 Capon Street, Chadstone, Vic. 3148

The versatility of the Dip Oscillator is well-known, but, while it is essential for easy application and it's wide frequency coverage, there are some shortcomings.

Even used with a frequency counter there is always the uncertainty of the "pulling" effect and of maintaining constant coupling. An uncertainty of five percent is enough for a quarter wave HF transmission line to fall outside even the 80 metre band!

The HF Noise Bridge is becoming more common. But it is after all a voltage operated device. It is calibrated and compensated for 50 ohms or 100 ohms. Lack of developed voltage across loads of less than 10 ohms coupled with the doubtful end resistance of the calibrated potentiometer results in a broad indefinite dip as the unknown sample approaches zero. For transmission line tests, do not take the advice of most texts viz set the dial to zero and tune the receiver for the best dip. Rather measure a 10 ohm non-reactive build out resistor at the approximate frequency. Then leave the R and C dials set and connect a quarter wavelength stub in series with the resistor before adjusting the receiver for dip at resonance. A sharp null should be available.

When close in, the R dial on the bridge can be readjusted slightly but do not touch C. As 5 pF of parallel reactance can mean 100 kHz at 3.600 MHz there is little margin for error when a resistive result is required at mid band.

This procedure can produce very good results but there is another way using a toroid transformer-type SWR meter as an indicator. These instruments compare the phase and amplitude of the voltage and current indicating sections. Like the Noise Bridge, they are calibrated and compensated for 50 ohm or 75 ohm transmission lines. Below 10 ohms the current meter section still indicates but the volt meter has starved while the opposite effect occurs over 250 ohms where the voltage is indicated, but there is insufficient current to affect the reading.

These characteristics can be used as an indicator for transmission line tests using suitable comparison terminations and a buffer pad for a power signal generator which can be the station VFO, a low power driver stage, or a QRP transmitter.

A 6 dB Attenuation Pad is normally used to reduce the voltage and current each to half the input value for a 50 ohm termination; ie it reduces the power to a quarter. When terminated by a non-reactive 50 ohm resistor it can become a dummy load. More importantly it also has the property of only changing from 30 ohms to 84 ohms at the input port when the output is either shorted or left open. Values well within the 2:1 capability of most solid state equipment designed for 50 ohms.

It is therefore an essential item to buffer equipment during initial tune ups or for antenna and transmission line testing. Also it is ideal to allow the use of 5 ohms and 330 ohms termination in tests using the SWR meter for a dip indicator as it tends toward a current limited source when the load approaches zero and as a constant voltage source for high impedance loads.

Power handling capacity of available non-reactive resistors is a difficulty but the metal oxide type are obtainable in two watt rating. So a pad capable of absorbing 10 watts of RF power with the output port open circuit can be built using the Tee-configuration as in Figure 1.

Then, for testing series tank circuits and quarter wavelength stubs, inverting sections, to an open circuit at the remote end and also half wavelength lines, repeating sections, to a short. The output port of the 6 dB pad can feed via a Tee-connector to both a 5 ohm termination, two ten ohm resistors in parallel, and the test section in parallel as in Figure 2. The SWR meter in the resistive leg does not indicate SWR as insufficient voltage is developed across the load for that section to materially affect the reading. However, in-phase current to the resistive termination shows a dip when it is robbed by the line section as it falls to its lowest value at resonance.

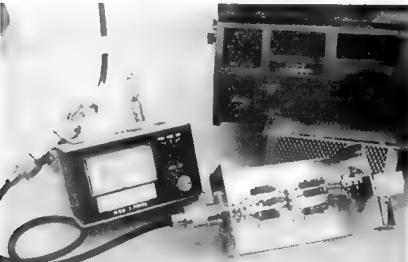
Disconnect the line section for the dip to restore to maximum reading proving that it is not due to other circuitry. Then substitute a non-reactive resistor 1 ohm to 10 ohms usually for the same dip reading. This value is the equivalent series loss of the test section and for example RG58 cable will be about 2.5 ohms for a quarter wavelength section at 3.600 MHz. Increasing in resistance for poor quality or damaged cable. Expressed as a percentage of the nominal cable impedance this loss can be transferred to a set of dB tables to convert to the cable specification figures in dB per 100 feet. For other than USA specifications make the ratio into metres.

Sections of cable can be cut five percent longer using the Dip Oscillator method. Then the percentage error checked using the Star — cut off two-thirds of this only then re-check and, on cutting two-thirds of this new error, the result should be very close indeed.

The similar arrangement in Figure 3 can be used for higher impedances from 200 ohms to 1000 ohms, where a bridge with a suitable range is unavailable. The 6 dB pad feeds via a 330 ohm series resistor to the Tee-fitting where the SWR meter indicates voltage across a single wire leader to that mystery long wire. The ANT port of the SWR meter is left open so no through current affects the reading and the indicated voltage peaks at the resonant points as the frequency is varied across the band.

However this is of less practical value and accuracy than the low impedance case as the test sample is usually subject to other influences. For example, a half wavelength must include the distance to effective earth from the Tee-coupler and the capacity to earth from the remote end. Therefore, with the near end at an earth stake and the remote at say five metres high the section must be adjusted if it is subsequently raised to 10 metres horizontally. Of course, the same restrictions apply to Bridge and other methods of measurement and general practice requires these measurements to be made in normal operating position via a repeating section of half wavelength of cable which itself can be accurately cut by the previous low impedance method.

The frequency accuracy of this dip method can be somewhat better than one percent, of



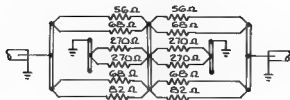


Figure 1: Attenuator Pad 6 dB 50 ohms.
Series Resistors: Each two watt Metal Oxide.
 1 x 56 ohms.
 2 x 68 ohms.
 1 x 52 ohms.

Shunt Resistors: Each two watt Metal Oxide.
 4 x 270 ohms.

Common Bars: Multiblock inserts each drilled three ways transversely.

the same order as some commercial bridges, with a reasonable frequency readout from the VFO. After all this Star or Tee arrangement comparing the current fed to two branches from a current limited source is the inverse arrangement of the Delta or Bridge circuit which compares the voltages developed across two impedances.

A complete instrument along these lines can be constructed. However, for occasional use the station SWR meter provides a readily available indicator while the 6 dB pad limits and protects the source as well as it's other uses.

REFERENCES
 RF Measurement of R and J Amateur Radio, July 1968

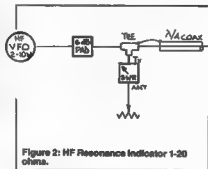


Figure 2: HF Resonance Indicator 1-20 ohms.

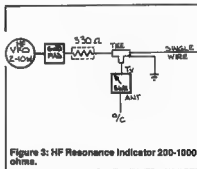


Figure 3: HF Resonance Indicator 200-1000 ohms.



Try This!

VHF-UHF VEE ANTENNA

E C Brockbank VK2EZB
 115 Myall Road, Cardiff, NSW, 2265

The theory of such Vee antennas is not new and the gain to be expected can be found within the ARRL Handbook: Resonant Long Wires. The amazing thing is that it is simple to make, costs a trifle and works well. It can be constructed from continuous heavy copper wire, a unimim wire or tubing.

The good book says that the impedance is 300 ohms, but 75 ohm coaxial cable appears to cause little problem. Surprisingly it will work on high band VHF and across the UHF band at distance. At UHF, each element is a full wavelength long and phasing is one half wavelength. At VHF each side appears to combine to create a halfwave dipole length.

Both sections are insulated from each other and fed at 'X'. A suitable support for the two sections would be a plastic, electrical T junction box. Place a washer to the inside of the T junction to support the rivet and then pop rivet each section. If using aluminum tubing, lugs may be pop riveted at point 'X' to accept the feedline.

If you are sceptical that the television antenna will work at all, then make up a mock mode. That aluminum wire used for television harnesses, should do the trick.

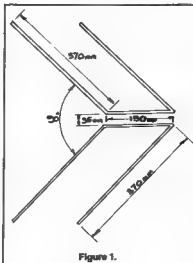


Figure 1.

Many years ago, the Tee Vee antenna was a popular antenna around the suburbs.

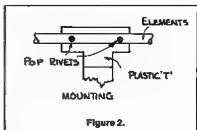


Figure 2.

REMEMBERING AROUND

* * One More World War Two Piece of Gear * *

THE TRANSMITTER TYPE 133

John Stone VK4NZ
25 Scrub Road, Coolumb Beach, Qld. 4573

Joe unknowingly prompted the completion of an article which was drafted quite some time ago!

Reading Joe Baker's *Listening Around* (which I do with great interest) brings back my own memories of Morotai Island, where I spent 18 months of young life, in 1945/46, providing TLC (Tender Loving Care) to a flock of No 133 transmitters.

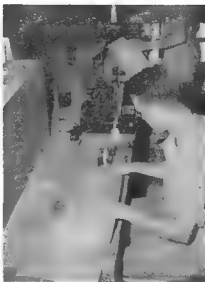
It is surprising that I did not meet with Joe — and I may well have done so — our camp was right next door to the Boomerang (open-air) Picture Theatre, at Advance Land Headquarters (Landscape) mentioned by him. I do well remember that GAD, Radio Morotai, played quite a few records which were, at that time, "persona non grata" back in Australia, such as *Rum and Coca Cola* and *Max Miller's* pert numbers (*My Ann — Let's do our Lovin on the Five Year Plan*).

However, I do not remember having seen the 133 Set featured in AR, and Joe has unknowingly prompted me to complete an article thereon which I drafted quite some time ago.

The 133 Transmitter was a 300 watt, mainly CW transmitter produced by AWA, presumably to Defence Department specifications, and was designed along, what I would expect to be, good normal civilian practices.



Inspecting the perforated tape. Control Panel with the AMR100 Receiver is in the background.



Gueing the Undulator Inked Morse Tapes onto sheets prior to reading.



HF 300 watt portable — 1945-style. Type 133 Sets mounted in jeeps.



Original 'Landops' transmitter shack at Morotai — a leaky marquee with two 25 kVA alternators (Ford Mercury) outside.

It covered 1.5 to 12 MHz, using 807 Crystal and VFO Oscillators, to 807 Buffers, 807 Driver to push-pull 813s Output, with 1800 volts on the plates. Provision was made for grid modulation speech or tone (MCW), and for either local or remote control.

Construction in six roll-out sub-units simplified service operations. My one lament was the fibre insulation in the finals, rather than ceramic — there being no suitable plastic for the job in those days. The RF and the humidity of the tropics had an unfortunate rheumatic effect, and after 18 months on Morotai the preamplifier tuning shafts and associated equipment were assuming the likeness of mushroom stalks, upsetting tuning operations no end.

Otherwise, we had very little trouble from these rugged work-horses. Not like the AT13, 500 watt RAAF set, we had at one stage (see AR, January 1987, p7). It developed a short to earth from the transformer filament winding feeding the 885 mercury vapour rectifier filaments, which, of course, were at "X" hundred volts above earth. No spare transformer was available so we jacked the faulty one up on insulating pillars and suitably labelled it "DANGER HI VOLTS". I hope that the label never came off with disastrous results to later users! I wonder if the initial fault was caused by one of Ted Roberts' mice (AR reference above).

At one stage we had 18 133 sets in the "shack" working forward to Bonoe (various points) and the Philippines, and later, when the 10 kW SWBs of

High Speed Wireless Section had gone home, working back to Melbourne. All using 500 ohm line to Delta matched dipoles, hung on pipe section-type masts at 70 feet (21 metres).

One photograph depicts a 133 set detachment sitting up for portable use. Each detachment consisted of one 133 set, 5 kVA alternator (Howling Howard, or if lucky, a Ford Ten power unit), two receivers and about eight people (bodies of various "trades", all were transported in two jeeps and trailers, together with the equipment).

I fortunately did not have to operate our sets "portable" however, I would guess that many readers did. I can also imagine the trauma of transporting the "Little Brother" of the 133 set, the 100 watt AT54AR8 (112 set) pedestrian/portable in

Papua New Guinea, together with its hungry genemotor and associated batteries and charger.

Should anyone be interested, I have the workshop manual of the 133 set, also copious notes received at a Sydney course devoted largely to these sets.

As an associated point of interest, a couple of years ago a photograph appeared in AR of an oval mast section, with a query as to its origin. It

appeared very similar to the 90 foot (27 metres) portable telescopic masts used on Morotai to carry the rhombics for the SWBBs (10 kW), which were being used on the Melbourne link. High Speed Morse to Creed Perforator Heads and Teleprinter when conditions were good enough. The mast junction shown was at 30 feet (9 metres), tapering away to the ground, and up to the remaining 60 feet (18 metres).

Whilst on nostalgia, a query on Further Veteran Nostalgia. Does any former Army Signals persons recall the ancient (probably circa 1920s/30s) 'Ack' or 'Cork' sets (transmitters), which I can vaguely recall doing some training on very early in WWII, probably 1939. Al VK4LT, recalls that they had a big Douglas motor/generator to drive them. There are probably a few samples still hidden in some Ordnance or Signals Depot somewhere!



The new shack in May 1945 — approximately 100 x 35 feet (30 x 10 metres) with a pile of the 84 and 95 Wireless Sections equipment waiting to be unpacked. Corpulent Sergeant Wai Badge supervisors from the top of the heap.



Boring holes in Morotai Island. They did actually do this through the coral crust to "great nothingness."



The "Slaves" at work erecting a PL (permanent line). "Wot, no back hoe?"



Signal Office Staff, Morotai 1945.



The receiver racks for the double diversity reception of the High Speed W/T terminal from Melbourne. Two AMR100 (101?) receivers with Undulator head between them on Morotai 1945.



Contests



Ian Hunt VK5QX
FEDERAL CONTEST MANAGER
Box 1234, GPO, Adelaide, SA. 5001

JULY

- 1 Canada Day Contest
- 4 5 Venezuelan SSB Contest
- 4 AHARS National Sprint CW
- 11 - 12 IARU World Championship
- 18 AHARS National Sprint SSB
- 18 - 19 CQ WW WPX VHF Contest
- 25 - 26 Venezuelan CW Contest

AUGUST

- 1 YLRL YL-OM SSB Sprint
- 15 - 18 Remembrance Day Contest (Rules this issue)
- 15 - 18 New Zealand Memorial Day Contest
- 22 - 23 At Assen CW Contest (Rules this issue)
- 1 - 31 40th Anniversary Pakistan Award (See notes below)

SEPTEMBER

- 18 - 20 Scandinavian CW Contest
- 28 - 27 Scandinavian SSB Contest
- 28 - 27 CQ WW RTTY Contest

OCTOBER

- 14 Australian Ladies' Amateur Radio Association Contest

Contests listed in bold type are WIA sponsored contest

Well, it appears that this month I have a great deal of material to deal with. The Federal Convention has been held, the VK Novice Contest is coming soon and, as I write these notes, I am also completing work on the Field Day Contest Log. I will also present the rules for the Big One, namely the Remembrance Day Contest. So, life is certainly not dull!

It seems to me that we each have a wonderful opportunity to learn. As we progress throughout our lives we find that there is nothing better than experience as a teacher. Some of us are fortunate and seemingly have little difficulty in most of what we do, others have to work harder at it and others again find things somewhat of a struggle. Nevertheless, life goes on. I believe that our hobby of amateur radio can be a great help to us in assisting us to develop and that we can also encourage others to improve as well.

I am reminded though of the story of a man delivering a lecture on the subject of "self-improvement". As part of his talk he pointed out that we should strive for perfection, but that we could never really be perfect. He then asked anyone who thought themselves to be perfect to stand up. To the lecturer's surprise one man stood. Asked if he really considered himself perfect the man replied "Certainly not, I am standing as proxy for my wife's first husband".

Well, perfection can make perfect and I would suggest that you can always gain experience and thus improve by going in contests, trying them if we haven't tried a contest before, planning our station and operational approach, preparing our logs, etc. with an eye to doing better each time.

And, so now to the rules for the Remembrance Day Contest. You will find them pretty well unchanged from last year. Again I would point out that my aim has been to try and establish a set of rules for each contest which can remain stable. Times and conditions however do change and I do not mean to infer that we should remain hide-bound about everything, thus, at times, the need for change can become apparent.

REMEMBRANCE DAY CONTEST, 1987

First of all I will list the names and call signs of those operators who lost their lives whilst on active service during the Second World War, and who are commemorated with their names being engraved on our Remembrance Day Contest Trophy. It is these names you will hear read out as part of the Opening Ceremony prior to the commencement of the Contest.

- VK2BD F W S Easton
- VK2JW C D Roberts
- VK2VJ V E Jarvis
- VK2YK W Abbott
- VK2JB G C Currie
- Royal Australian Air Force
- Royal Australian Military Forces
- Royal Australian Air Force
- Royal Australian Air Force
- Royal Australian Air Force

- VK3DO J D Morris
- VK3GO T Stephens
- VK3HN J McCandlish
- VK3IE J E Mann
- VK3NG N G Butler
- VK3OR M D Orr
- VK3PL J F Colthorpe
- VK3PV R P Veall
- VK3SF S W Jones
- VK3UW J A Burrage
- VK3VE J S Snadden
- VK4OR D A Lewis
- VK4FS F J Starr
- VK4PR R Allen
- VK5AF C A Innes
- VK5BL B James
- VK5BW J G Phillips
- VK6GR A H G Rappin
- VK6JG J E Goddard
- VK6KS K S Anderson
- VK6PP P P Paterson
- Australian Military Forces
- Royal Australian Air Force
- Australian Military Forces
- Royal Australian Navy
- Royal Australian Air Force
- Royal Australian Air Force
- Royal Australian Air Force
- Royal Australian Navy
- Royal Australian Air Force
- Australian Military Forces
- Royal Australian Navy
- Royal Australian Air Force
- Australian Military Forces
- Royal Australian Navy
- Royal Australian Air Force
- Australian Military Forces

**They shall grow not old as we that are left grow old
Age shall not weary them nor the years condemn
At the going down of the sun and in the morning
We will remember them.**

With the notes in connection with the Remembrance Day Contest last year, I remarked on the number of operators listed who were members of the Royal Australian Air Force. I asked whether anyone had any historical information regarding that era of Australian amateur radio. Up to now I have not heard from anybody.

It occurs to me that most of those who served during the Second World War and who might have information, will now be getting along in years. It would be a dreadful shame if so many stories went unrecorded. So I would again request anyone who has such information to pass on, please forward it to me. I will see that the details are preserved. Did you perhaps know any of the amateurs listed above?

Where did they serve, etc? Do you have a story to tell about your operations in the Forces? Any information will be welcomed. It may be that, after finishing my term as FCM, I could put a small series together. Don't worry if you don't think you are any good at writing, still send the information and I will undertake to put it into shape. Maybe you may find it easier to place the details on an audio cassette!

Following are the rules in detail.

1987 REMEMBRANCE DAY CONTEST — RULES

This contest is held to commemorate those amateurs who died during WWII, and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all participants.

This contest is held annually during the week-end nearest August 15, the date on which hostilities ceased in the south-west Pacific area.

The contest is preceded by a short opening address by a notable personality, which is transmitted on various WIA frequencies during the 15 minutes immediately prior to the commencement time of the contest. As part of this opening ceremony, a Roll Call of the names of those amateurs who paid the Supreme Sacrifice, is read.

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice and so perpetuate their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and in addition, the winning Division will receive a suitable certificate. The winning Division also holds the trophy for the next 12 months, after it is presented at the Annual Federal Convention.

Objectives

Amateurs in each VK call area will endeavour to contact other amateurs in their own call area.

In any other VK call areas, P2 and ZL on bands 1.8 to 30 MHz, except the 10, 18 and 24 MHz bands.

In any VK call area, including their own, P2 and ZL on bands above 52 MHz, and as indicated in Rule 5.

Contest Period

0800 UTC August 15, to 0759 UTC August 16, 1987

All Australian amateur stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest.

It is during this period that the Opening Ceremony Broadcast, referred to above, will take place. (We invite even those stations who do not intend to participate in the contest to join with us in this mark of respect.)

Rules

1. There will be two contest categories.

(a) High Frequency (HF) — for operation on bands below the 52 MHz band

(b) Very High Frequency (VHF) — for operation on bands from 52 MHz and upwards

2. In each category there will be three sections.

(a) Transmitting Phone

(b) Transmitting CW

(c) Receiving

Modes applicable to each section are as follows:

(a) AM, FM, SSB, TV

(b) CW, RTTY

(c) Receive (a) or (b).

3. All Australian amateurs (VK call sign), ZL and P2 stations may enter the contest, whether their stations are fixed portable, or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.

4. Cross Mode Operation is permitted, (eg SSB to CW). Cross Band Operation is not permitted excepting via a satellite repeater.

5. Scoring Controls

(a) All contacts score one point.

(b) On all bands a station in another call area may be contacted once on each band using each mode. That is, you may work the same station on each band in Phone, CW, RTTY and TV.

(c) On the bands 1.8 MHz and above, the same station in any call area may be worked using any of the modes listed, at intervals of not less than two hours since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.

(d) Acceptable logs for all entries must show a minimum of at least 10 valid contacts.

6. Multi-Operator Stations Are Not Permitted (except as in Rule 7), although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own call sign. Should two or more operators wish to operate any particular station each will be considered as a contestant and must submit a log under the individual call sign which applies to that operator.

7. Club Stations may be operated by more than one operator, but only one operator may operate at any time; ie no multi-transmission. All operators at any club station must sign the declaration

8. Ciphers. For a contact to be valid, serial numbers must be exchanged between stations making the contact. The serial number will comprise three figures commencing at 001 for the first contact and incremented by one for each successive contact. Should the serial number 999 be reached, the serial number will revert again to 001.

9 Terrestrial Repeaters Contacts via terrestrial repeaters are not permitted for scoring purposes. Contacts may be arranged through a repeater and if successful on another frequency will count for scoring purposes. The practice of operating on repeater frequencies in simplex mode is not permitted.

10 Portable Operation Log scores of operators located outside their allocated call district will be credited to that call area in which the operation took place, as VK3X22, so this score will be added to the VK2 Division score.

11 Entries — A log of all contacts must be submitted. This should be in the format as shown in the example and must be on one side of the paper only.

A Front Sheet must also be included showing the following information in this order: Call Sign (HF or VHF) Section (Phone, CW or Receiver) Call Sign Name Address, Total Score, Page Tally.

Declaration: *I hereby certify that I have operated in accordance with the rules and spirit of the contest.*

Signed Date:

Logs are to be forwarded to the Federal Contest Manager.

C F Beech VK7BC, 37 Nobelius Drive, Legana, Tas. 7251.

Envelopes to be endorsed **REMEMBRANCE DAY CONTEST** on the **FRONT** outside. Entries must be forwarded in time to reach the Federal Contest Manager by September 28, 1987. Any entries received later than this date may be used as Check Logs only.

12. D equalification — See the general disqualification rules as printed in detail in the August 1986 issue of *Amateur Radio*.

Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may also be disqualified.

13. Awards — Certificates will be issued in accordance with the Guidelines for Certificate Issue — *Remembrance Day Contest* details of which are published below.

DETERMINATION OF WINNING DIVISION

Scores by stations in VK0 are added to VK7 Scores by VK9 stations are added to the mainland call area by a geographical nearest. Scores claimed by ZL and P2 stations are not included in the scores of any VU call area.

The formula is used to determine the winning WIA Division is applied on a Division basis using a combination of three factors, namely, involvement, activity and weight (Handicap).

The Weighting Factor is calculated such that show, each WIA Division perform equally well in 1986 as it set number of previous years. The rest, it would be a seven-day dead-end.

Consequently, the most improved Division will win the trophy and also earn a revised and lower weighting factor for the following year.

DUPE SHEETS

Where stations make a reasonable number of contacts it is most helpful that they use some form of checking system to ensure that they do not have invalid duplicate contacts. A form of sheet which provides a convenient method of making such checks was described in *Amateur Radio*, December 1984, page 64. We would suggest that you should use such sheets. We list it as not mandatory that you do so, it could be of assistance to the contest manager, if you forward a copy of same, together with your log.

RECEIVING SECTION RULES

1 This section is open to all shortwave listeners in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.

2 Contest times and logging of stations on each band are as for transmitting.

3 Logs should be set out as per the example. It is not permitted to log a station calling CQ. The detail shown in the example must be recorded.

4 Scoring will be as per Rule 5 for transmit time with other aspects of that same rule, so applying.

5 CQ Stations may enter this section. All operators must sign the declaration.

AWARDS FOR SWLs

Certificates will be awarded to the highest scorer in each call area. Further certificates may be issued at the discretion of the FCM.

GUIDELINES FOR CERTIFICATE ISSUE, REMEMBRANCE DAY CONTEST

Certificates will be issued on the following basis:

1. Top scorer in each section. (See also 4 below)
2. Top Novice Class Station in each section, but as per proviso 3 below (NJK calls compete on an equal basis when operating in HF (Novice) Band Segments, therefore there is no justification for separate certificates for each different type of call sign).

3. Where an entry other than top scorer is concerned (as per 2 above), a certificate will only be issued to a station if that station's score is equal to, or greater than, the average score in the applicable section for that State/Division.

4. Where only one entry exists in any section, a certificate will only be issued when the score for that entry is equal to, or greater than, the average national score for that category/section of the contest.

5. On VHF, the top scorer only in each section will be awarded a certificate. (There is no justification for separate certificates for holders of Full, 2 or K calls as each competes on an equal basis on VHF).

6. The above rules apply with the understanding, as already determined policy, that the Federal Contest Manager has the power of discretion in such matters and may either award additional certificates where he considers it warranted or not issue a certificate if he considers one unwarranted.

GENERAL COMMENT

You may again wish to note the fact that the NZART Memorial Day Contest is being held on the same weekend as the VK Remembrance Day Contest. This is not just a coincidence but results from an agreement between myself and Jock White ZL2GX, who is Contest Manager for New Zealand. Following the 1986 Federal Convention, Jock and I had some quite lengthy discussions as to the best ways to rationalise contests in each of our countries. We decided that it was possible to at least have the Field Day Contests coincide as well as the two previously mentioned. It was also agreed that contacts in each contest could count for either.

Therefore, if you wish you can enter both the Remembrance Day and Memorial Day Contests and utilise the same contacts where they can be applied on a common basis under both sets of rules.

At this time, I do not have a copy of the Memorial Day Contest available, however, I hope to receive a copy in time for publication in this issue of *Amateur Radio*. I do not need the rules published herewith I will try and ensure that they appear in the August issue. That should still give you enough time to study them prior to the contest date.

While I am on a subject allied with the New Zealand scene, I would like to make some comment regarding Jock ZL2GX, who I understand is retiring at the end of the VK/ZL Contest after at least 40 years of administering same. This is undoubtedly a tremendous effort and I am sure that he will be missed both for the work involved and also for his incisive humour which often came to the fore in Jock's comments with the contest results.

I would also like to acknowledge Jock's kind and gentlemanly co-operation in matters concerning contesting in general and, particularly, where the interests of both the WIA and NZART were involved. I have enjoyed working with Jock and I wish him well as he perhaps takes a well-earned rest. (I don't believe for one moment that he will rest anyway. He is bound to have some other activity to more that fill his time). Congratulations and thanks on behalf of so many who have benefited from your efforts, Jock.

So, now my final words in connection with the Remembrance Day Contest: "Go to it, try hard, have fun, and please do help the incoming Contest Manager by presenting logs of a high standard. Also please read the rules and comply fully with them, they are not really too hard to

EXAMPLE FRONT SHEET

Remembrance Day Contest 1987
 Section (a) Transmitting Phone
 Call Sign: VK1XXX Name: Joe Brown
 Address: PO Box 123, Farm District ACT 2611
 Total Score: 1498 points

Page Tally	10 Sheets	1498 points
Page		Score
1		40
2		38
3		40
Pages 10		Total 1498

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.
 Signed J Brown Date 20 5 87

EXAMPLE RECEIVING LOG

Remembrance Day Contest 1987
 NAME/SWL No: L30371 CATEGORY: HF
 SECTION: (a) Receiving Phone

Time (UTC)	Band (MHz)	Mode	Stn Calling	Stn Called	No Snt	No Rcd	Pts
15.57			VK1XXX	VK200	001	022	1
0802	14	SSB	VK1XXX	VK6L	029	051	1
0805			VK5ANW	VK1XXX	011	023	1
0807			ZL2AG	VK1XXX	027	010	1
0809			VK6L	VK2P5	002	010	1
Page 1 of 7							Page Total 40

EXAMPLE TRANSMITTING LOG

Remembrance Day Contest 1987
 Call Sign: VK1XXX CATEGORY: HF
 Section: (a) Transmitting Phone

Time (UTC)	Band (MHz)	Mode	Call	No Snt	No Rcd	Pts
15.57			VK200	001	022	1
0802	14	SSB	VK6L	029	051	1
0805			VK5ANW	011	023	1
0807			ZL2AG	027	010	1
0809			VK6L	002	010	1
Page 1 of 10						Page Total 40

follow Best of luck to you, this is the classic event on the VK Contest Calendar.

40TH ANNIVERSARY PAKISTAN AWARD

I have received a copy of data for the 40th Anniversary Pakistan Award in the mail. While this is not a contest, I am providing the rules for this award as it appears the information was sent to me rather than to the Awards Manager. I know that he will forgive me for "poaching" and so that he would not want any of you to miss out on the information.

The rules for the award are as follows:

The Pakistan Amateur Radio Society has sponsored an award to commemorate the 40th Anniversary of Pakistan on August 14, 1957. The Society will send special award certificates and gifts to all amateur stations making five contacts with different AP2 stations on CW or SSB on any band/s from August 1 to August 31, 1987. Special QSL cards will also be issued by AP2 operators.

During the period of the award, operators will be using their own call signs with stroke 40, ie AP2UR40, etc.

A certified copy of your log booksheet, along with five IRCs should be sent to the Secretary PARS Box 95, Lahore, Pakistan, to reach there not later than September 30, 1987.

The information about this award was kindly supplied by APPARS, above the signature of the Secretary of the Pakistan Amateur Radio Society.

JOHN MOYLE MEMORIAL FIELD DAY CONTEST 1987 — RESULTS

I am pleased to be able to provide the results of this contest for you and also that of the President's Cup Award.

A PICTURESQUE JOH



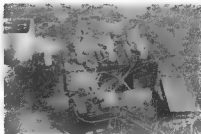
The Solar Panels catch the sun in the foreground, whilst the operators of VK6BP take refuge under a tarpaulin.



Lewis VK2LS. operates VK2BOR.



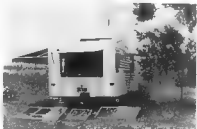
Allan VK2ALI (left) and Keith VK2KDL, President of the Oxley Region ARC, operate VK2BOR, during the Contest.



Battery Power for VK6BP.



VK6ANC, used an exercise bike and solar panels for power.



The Operations Caravan of VK4WIR.



VK2DVU, portable Brindabellia.

The JMMFD Contest Station Aerial of VK5DI/P with the Solar Panel at the Base of the Pole.

JOHN MOYLE FIELD DAY!



John VK6ATA (pedalling), Phil VK6ZPP (operating) and Dennis VK6ZN (observing) at VK6ANC.



John VK6JY, provides the power? at VK6ANC



"The Shack" on Mount Hotham



The Fire-Spotter, David Wiggins, provided Gil VK3CGG, with some company during the Contest.



Wind Generator, Mount Hotham

Gil VK3CGG, operated from Mount Hotham and was treated to magnificent views of the surrounding countryside



ANC.



The VK6ANC John Moyle Field Day Site

The Field Day Contest was again well patronized with the number of participating stations almost the same as for last year. Most entrants seem to have enjoyed the event and quite a number forwarded photographs taken at their Field Day sites. I have already provided some material, which was published last month. I thank all who have contributed with stories, comments and photographs. Such contributions certainly add to the amount of interest.

PRESIDENT'S CUP

Again, the President's Cup has been won by Gil VK3CGG (now VK3CO). It seems that Gil is determined to stay at the top in contesting as you will note from the June issue of *Amateur Radio* that he was the winner of the CW Section for the Contest Championship Trophy, 1986. Congratulations to you, Gil, for your perseverance and determination. I hope that you will continue your contesting efforts for many more years to come. Perhaps your example will help spur others on to try and emulate your activities.

When it comes to contesting I feel that it is just what it should be — a contest — and the more competition the better is.

Now for the detailed results to which are listed in order of Section, both six and 24 hours, and show the number of contacts and points scored by each station.

24 HOUR DIVISION SIX HOUR DIVISION

CALL	QSOs	PTS	CALL	QSOs	PTS
Section (A) Phone Single Operator					
VK2YH	276	5296	VK3ADW	74	1758
VK3AJU	208	2287	VK2SD	164	1361
VK3JL	45	457A	VK3BPA	137	1547
VK3JM	100	1537	VK2DYU	57	627
			VK3AJ	48	587
			VK2ZNU	63	568
			VK3VF	42	408

Section (B) CW Single Operator					
VK3CGG	178	3184	VK3CF	18	410
			VK2AM	6	118
Section (C) Open Single Operator					
			VK3AFW	72	1896
			VK2BRC	86	825
			VK3ADJ	33	808
			VK2ARZ	47	483

Section (D) Phone Multi-Operator					
VK3BBO	890	13185	VK4VZ	448	4387
VK3ANR	830	9981	VK4VW	416	3750
VK4VZ	804	7437	VK5BAR	159	2298
VK4VH	410	6173	VK6YG	80	857
VK4SD	213	2521			
VK4VH	172	2521			
VK2SCC	158	2507			
VK3VMS	152	2473			

Section (E) Open Multi-Operator					
VK3CSE	841	22065	VK2BOR	81	2106
VK2ZWG	473	17168	VK4CD	189	1882
VK3SCD	547	9134	VK4VW	104	1287
VK4VH	309	8213	VK4BPA	35	384
VK4SD	273	8092			
VK3B	228	4888			
VK3ANR	393	4789			
VK2ZH	458	4239			
VK2FG	334	3659			
VK3AP	275	3391			
VK2BRC	147	3326			
VK3B	156	2029			
VK2SEL	117	1839			
VK4VH	127	1520			

Section (F) Translating, VHF					
VK3YSY	156	8701	VK5OI	23	2845
VK2BN	94	5509	VK1RH	5	61
VK3BM	96	3232			

Section (G) Home Station Emergency Power					
VK2MB	274	3112	VK4SD	56	1540
VK5AD	111	1235	VK6VH	222	1121
VK4SD	246	318	VK2SCC	66	573
VK2SD	24	265	VK4VZ	122	445
			VK5AFW	6	134

Section (H) Home Station					
VK5DA	53	248	VK3O	26	192
VK3ED	11	371	VK3GS	4	42
VK5ARD	42	260			
VK3B	7	162			

Section (I) Shoreline Listener

L60036 64 690

Check Logs

VK6WZ
VK5AG
VK5AUS
VK3CS
VK5DI

I have reduced the number of points claimed by one club station by an amount of 10 percent of the points scored as a penalty for not having provided a summary sheet of contacts made for which distance multipliers were claimed. This reduction did not affect the final result, however, I would have been within my rights had I disqualified the log altogether. Attention to detail is important when you make out your contest entry. So please check your logs before submission. Generally speaking the standard of logs was fairly good for this contest with again the entry from VK3CNE being an outstanding example of how it can be done.

I have no doubt whatsoever as to the operations carried out by the station VK5ANC, as those concerned with that station had gone to the trouble of filling out a Statutory Declaration witnessed by a Commissioner for Declarations, indicating just what the operating conditions, etc. for that station were. This is the first time that I have received a Statutory Declaration as such with a log, however, it certainly indicates that those concerned wanted to make sure that their entry was properly accounted for. At least one log submitted was incorrectly scored to an extent that I did not accept it as an entry and have instead included it as a check-log. In cases where I can re-score logs without too much difficulty, I have done so in a number of contests, however, where such action would require too much of my time I have either disqualified the log concerned, returned it to the sender for correction and/or re-submission, or discarded same.

It always seems to me to be a pity when entrants have their logs disregarded due to the fact that, after having carried out their operations in a contest, they neglect to read the rules regarding log layout and submission and fail to follow the instructions given.

The letter accompanying the log from Maggie VK3CFI, deserves comment. Maggie operated CW-only with solar power. I quote from the log: "A few CW QSOs over the past two years, I had not done much serious operating in that mode. For a while it was hard to sort through all the dits and dahs. I think I asked each operator to repeat the number two or three times. Even then, I wasn't quite sure. The 2Ls all were good operators, but their CW was very fast."

"I was afraid the solar charged batteries might get drained too much, but the worry was for naught. Sunlight for four of the six hours helped. I think."

"This was my first contest solo. I'm glad there was a six hour Division — 24 hours would have been too long. The OM and harmonics brought me some tea and provided me with company, about halfway through."

"Thanks for the contest. I'll be better prepared with my CW next year." Well done, Maggie. Keep up the good work. (FCM)

Now for comments from other logs

"First time I've entered the JRL. This year activity had to compete with duties as Acting BC Officer VK5BRS, preparing the Sunday Morning Broadcast, a bachelor's household tasks and our first really trying period of winter weather this summer. Enjoyed taking part. Beginning to wonder if contests are getting to me! Only the RD has had anything like regular participation for as long as I can remember. Other contests have been dismissed as a bore! But I'm not!" — VK6WZ

"This was the first time I've entered in the Contest Championship points, as the mobile does nothing unusual and only drives somewhere and in fact he only part in the neighbour's driveway. The Section (H) would be a good one and of course try to make it as realistic as possible. I wonder if I am 'portable' and not 'home.' The only thing common to my 'Emergency' log and the regular is the QTH. I am a mobile station. I find the mobile and the car are changed. Even the beams are now used as emergency power does not extend to the rotators. VHF is different. It is often a little easier on battery power (which I had to carry out) although no better. Perhaps I am portable after all. Just some ideas." — VK3BGS

Here I think I might make some comment. The rules for the contest used to stipulate that no

normally occupied premises could be used to house a field day station, also that the venue for operation must be a certain minimum distance from the home location. In fairly recent times prior to my term for JRL, these rules were dropped from the rules. I have no strong feelings on the matter in view of the fact that in an emergency, a station may need to be set up almost anywhere. I had considered that a "Home Station Emergency Powered" would be a normal home station running from such as batteries, generator or solar power, etc. It seems to me that Jim VK2BQ3, has gone to much trouble to make his station work. I can make his entry more worthwhile. For this, he is to be commended. Yes, he comes close to his station being acceptable for the 'portable' category. Maybe all that is needed is another antenna as I know that he sets his equipment up in another part of his house away from his normal operating location. The approach to the Contest Championship competition is such that the 'Home Stations' either on emergency power or on solar power generally do not require the amount of work necessary as appears to setting up a Field Station. It would seem that most operators do to the spirit of things and as so that very few entries are received from operators simply putting up somewhere in their rural 'mobile' unit and participating in the Field Day.

Whilst on general comment, I would refer you to my remarks regarding my report to the Federal Convention and the outcome of my recommendations to same. I would expect that from the next Field Day Contest the new FCM will have addressed the various points concerned and thus the rules or new system will be somewhat different. Not for even more comments from logs.

"There could be a new section added to the contest where would cater for the QRP operators. I am not suggesting that special bonuses should be given for this. This should however be discussed with the contest committee. What I am suggesting is that a section where the maximum power output is limited to say five watts. This would encourage more operators to join the contest. I have operated QRP for many years and entered the contest or operated in it since that I can and have found it annoying when contestants use high power and do not give the small guy a go. Anyway I had a good time this year, especially as I was able to operate on the contest. Until next year QRP and all the best." — VK2NU (well, what do other QRP operators think? Any other comment? I think that new FCM will be tolerant to hear from you, FCM).

"As a Home Station — Emergency Powered. I only just made a record for the contest. I was able to operate two and a half hours on Saturday afternoon. G-clamps to face boards and two two-storey house, all very satisfactory. We were then out to do some work on the Sunday, especially after the number of call-backs to own the local WIA contest 2300 hours Sunday. Practically all stations had something better to do because they had heard again WIA contest in the end. I hope the contest continues and next year I will try and be a field station." — VK4VZ

"This was a day of 40 over 90 \$600 for the me so had limited time to operate. Luckily, it was a pleasant day for me. I noticed greater use of full RST in this year."

"Sorry for the trouble after this year. I was unable to go portable and divided my time with the BERU. Next year, I am determined to be there with a good power." — VK4VZ
"Really enjoyed the contest. Didn't expect to make any two more contacts due to my location in a valley surrounded by trees to three times the distance of the contest. A couple of the VK1 boys were up there and I had one contact with Waaga 125 km to the west of me on backscatter from the mountains to the east." — VK4VZ
"VK4VH was located at Camp Broome in the Barvey's Range about 30 km west of Townsville. The equipment used included an FT7, IC751A, IC735, TS205, a 100Watt amplifier powered by a portable generator. — VK4CD, Station Manager.

"Batteries were one Lucas Marathon (truck bus), one 12V Pulsar and one 6V General. The General was the smallest size Honda — EM550 — easy to carry by one person. Rigs were generally run at less than full throttle. One rig was recharged during the contest. The other was brought back into service. Antennas were supported by Air Tripod mast. Difficulties in getting it to full height of 33 feet obliged use at 24 feet. Inverted 'V' for 80, 40 and 20 metres (welding for 160) and inverted 'V' and eighth ground plane for 144 MHz on six foot extension to mast. Shack was a tent with folding table within. The only mobile structure was the station. The station was set up for fire-lighting in the surrounding pine tree plantation. At one time the QTH was an airstrip but has been abandoned and is now a bush area." — VK3A

"This year, my second, had a great time. The weather was a bit chilly overnight down to one degree Celsius, but I survived. I did enjoy my second contest in the Field Day." — VK3VZ

"A bit disconcerting coming up against the BERU Contest after seeing nothing in AR about it. Managed to work the whole 24 hours. Found my Morse was still as

good at the end as at the beginning. I wonder how long one could go. The Forensic Commission, now CFI, was helpful in letting me get out of the way into the fire tower right on top of Mount Houtman, there was an old telephone pole about 20 feet away which was just right for my antenna. I am sure this is the way to go in future, but I hope to get an old carver to turn into a mobile shack, together with a buddy we can operate HF and VHF. There were plenty of guys breaking the squelch on my two metre hand-held in the middle of the night, some from a good distance away too. Solar Panel, 14 volts by one amp measured. Wind generator, a failure, out of balance." VK3GGO

"Station sited on Mount Corb, 1421 metres elevation. Just inside the ACT side of the NSW border - a KDK two watts FM into a 18.180V amplifier, 100 to 120watts depending on state of charge of the vehicle battery. Topped up by a Kawasaki alternator feeding a 20 into power supply, the antenna, a 6 dB 18 foot collinear on top of a 27 foot telescopic mast pocketed into the bulk-head with six guy ropes. With Koth VK3ACZ provided the meals and ruled up some log pages." - VK2BN

"Thanks for an enjoyable contest" - VK3AOJ
 "Our operators and club members generally always enjoy the opportunity to co-operate as a club and the 'old days' provides valuable training for our members." - VK4BIF for VK4WIN

"Thanks for including Section (B) in the contest. I was unable to go portable that weekend and was very happy to be allowed to co-operate with at least simulated conditions. Hope to be portable somewhere next year." - VK3ADD

"I was unable to attend this year, but the boys told me they thoroughly enjoyed the contest once again. I have enclosed our 'ready reckoner' type score card. It was a great help to all the boys as they could identify the sections that were not in and in checking my efforts, perhaps it could be improved upon and used in AR for guidance of contestants in the years to come."

- VK3BIR for VK4WIN

suggested to another station that we QSY to CW for an exchange, we would be obliged to wait while a CW operator was found at the other end." (At least that way two operators had the experience of a CW contest QSO, F2D) you might be able to clarify a point in your column. We often padded out our QD-Contest calls with invitations to explain contesting to any stations who didn't know what was going on. We would also say that any station could work us and that it wasn't necessary to formally enter the contest in order to make an exchange. Doing this in the quiet periods was obviously in our interest. At one stage, however, we were chastised by an anonymous station who accused us of going outside the spirit of the rules. I'd be interested in your opinion. It's worth pointing out that such QD-calls often resulted in lengthy QSOs where we explained contesting in great detail to the other station, and these other stations then started handing out numbers to many other serious entrants." VK3GFA for VK3CSD CHEYENNE (Chesterman Radio, Electronics and Technology in Scotland)

The previous comments do warrant a reply. It is my very strong opinion that stations operating in a contest can do a great deal to benefit the hobby by taking an active interest in helping others understand what contesting is about. The actions of the operators at VK3CSD are to be encouraged and, far from being against the spirit of the contest, are in fact enhancing same. They also add to the friendly spirit of our hobby and will well "The Amateur's Code" which sometimes, unfortunately, seems to be forgotten. I have also, during a contest, when things became rather slow, gone scanning the bands to find other stations who may not be in the contest and spent quite some time encouraging them to join in with a contest exchange. This has resulted in some cases in disappointment, but in others, the extra points I wanted and so well the stations concerned have also gone on to provide other contacts. So you can see that I understand what you mean in your comments. My advice is to 'go for it' and make as many contest contacts as possible as long as you are not breaking contest rules. Departmental

The Wagga boys go on to comment on the portions of the rules dealing with ZL Field Day Stations which were originally omitted. The April notes for this column did point out quite clearly that it was too late to do anything about the rules for the Field Day Contest and the omissions which had occurred. There does seem however, that there was some doubt left in the minds of some of the entrants. I apologise if such is needed and I have ensured that, where any doubt existed, the logs concerned were correctly scored or suitably amended. My notes pointed out the reason the missing portions of the rules were published was to provide a more or less permanent record of same for reference by the incoming FCM next year.

On the subject of VHF operation, I would again refer you to my notes elsewhere in this issue of the column dealing with my report to the Annual Federal Convention

ROSS HULL VHF/UHF MEMORIAL CONTEST 1986

The results of the Ross Hull Contest as published in the April issue of *Amateur Radio* included an unfortunate oversight, for which I offer my humblest apologies. In listing the entrants I did so by call area and thus omitted to indicate that VK4FXZ17 was entitled to a certificate for his operation from Tasmania. I received a nice letter pointing out this anomaly and express my thanks for same. When one goes to the trouble and effort that I know were involved so as to operate from a temporary location under various forms of difficulty, a certificate is certainly warranted. I do so assure that, whilst this FCM is prepared to admit to making mistakes, he is also prepared to rectify them.

Whilst on the matter of certificates, I almost have all certificates up to date. These are gradually being processed through the Federal Office for mailing and I have promised the incoming FCM that he will have absolutely no backlog of certificates to deal with. This will include all certificates up to the 1987 VK Novice Contest. (Not yet held when this is being written). So, please be patient just a little longer if you are an expected recipient. All will be well before too long.

1987 FEDERAL CONVENTION REPORT
 Should you wish to see a copy of the Federal Contest Manager's Annual Report you can approach your Federal Councillor. Copies were mailed to all Divisions prior to the Convention.

My report to the Convention included comment on all the contests run throughout the year under FCM auspices, as well as the Contest Championship Competition Trophies, Certificates for the VK/ZL Contest and the Adelaide H1 Amateur Radio Society. In my report I acknowledged the help of Earl VK3BER and Jock ZL2GW, during the year I also expressed the benefit of being able to consult with Ron VK1RH, on a personal basis as his visits to Adelaide permitted.

My report then dealt with various recommendations to the Federal Council. It is upon these that I would like to pass some comments.

It is necessary that recommendations be viewed in the light of as much information as possible and to this end I supplied a number of attachments to the report. So that the average member reading this can be fully aware of the background, I will supply as comprehensive a coverage of matters as can be allowed in these notes.

A working party at the Convention, chaired by the Alternate VK1 Federal Councillor, considered the FCM recommendations.

REMEMBRANCE DAY CONTEST

I proposed that the new FCM might look at the duration of this contest. It is suggested that 24 hours for same is excessive. Two periods within the 24 hours could be adopted or two Time Sections similar to the Field Day could be applied. The matter could be examined to allow discussion at the 1988 Federal Convention.

It can be clearly shown that the formula as applied over the past several years for determining the winning Division for the Remembrance Day Contest does not include any participation as it should. This is because the component containing participation has been cancelled out. Despite

The "Ready Reckoner" as used by the Oxyley Region Amateur Radio Club.

Section Letters to be used in our Log:

LETTER	STATION TYPE	TRANSMITTING	OPERATOR	POINTS SCORED	
				OUTSIDE VK2	WITHIN VK2
A	PORTABLE FIELD	PHONE	SINGLE OP	20	15
B	PORTABLE FIELD	C.W	SINGLE OP	20	15 But CW to CW = Double
C	PORTABLE FIELD	OPEN	SINGLE OP	20	15
D	PORTABLE FIELD	PHONE	MULTI OP	20	15
E	PORTABLE FIELD	C.W	MULTI OP	20	15 But CW to CW = Double
F	PORTABLE FIELD	OPEN	MULTI OP	20	15
G	PORTABLE FIELD	VHF	Either	20	15
H	HOME STATION	EMERGENCY POWERED	Either	10	5
I	HOME STATION	MAINS POWERED	Either	2	1

Note: The above table does not apply to stations outside of VK (Overseas Stations) as they only score 2 points anyway.

NR: See rules re CW to CW.
 NATURAL POWER adds additional 10 points

"equipment used was an FT707 12 volt DC input power generating system with a single unit truck battery, had been fully charged before the contest. car battery was available fully charged and could have been used via jump leads if the 'old days' antennas were two two-element closed spaced Yag for 14 MHz. Webster Bandpasser mobile whip for 3.5 to 28 MHz. VHF antennas were a seven-element crossed Yag for 144 MHz and a 14 element Yag for 432 MHz. VK3CSD

"The competition this year was most enjoyable as we all got sunbaked at our location - Mount Wundat - the site of the Channel 11 Shepparton repeater. Would it be possible for next year to change the rules in some way to promote the early hours (2 am to 6 am) VHF and UHF contacts." - VK3KIN for VK3GGO

regulations or doing anything which is not within the spirit of amateur radio in general. Unfortunately, some people have fairly narrow views on some of these subjects. - FCM

"I enjoyed the Field Day (my first attempt) and hope to do better next year from a better location nearby and when I am better organised, and equipped for solar panel operations without battery. (Provided the sun shines). I hope to be able to operate VHF and HF (100 watts PEP) next time using solar panels and capacitors but I must choose a better operating time-slot for more activity." - VK3DI
 And, finally comment from the boys from the Wagga Amateur Radio Club, VK2WVG. "A disparity in point scoring between HF and VHF with the greater emphasis on the VHF spectrum is of concern to the HF operators. HF is undoubtedly the yield of points in comparison to VHF may attract field starters away from HF bands. Some of the regular HF operators who started this year or pursued it as a prime thrust, at a middle stage, were forced to be struck, to continue stimulation of activity on ALL pieces of spectrum or a continued degradation of HF participation may result. This current situation would, we feel, detract from the object of the field day and the spirit of the entire event."

the fact that the mathematical approach may have been correct, if a factor cancels out, then it plays no real part in determining the result.

Attachments to my report included a copy of the letter by Colwyn Low on the subject which was printed in *Amateur Radio* for March 1967, and a sheet detailing the arrangement of the formulas as they have been used and proposing a correction in line with the VK5UE suggestion such as to rectify the anomaly.

On these recommendations, the working party decided that the new FCM should report next year if the duration to the Remembrance Day Contest needed changing thus adopting my recommendation.

The matter of the formula to determine the winning Division, the decision has been indicated as indeterminate. The minutes sheet provided to me states "no change but note the proposal is within existing guidelines."

It would thus appear that with the existing guidelines to control the actions of the Federal Contest Manager, I really had no need to bring the matter under the notice of the Federal Convention. You, will note that I have not spelled out the format of the formula in the Remembrance Day Contest rules in this issue. Rather, I have shown the content of the guidelines in the FCM's "Terms of Reference". These show that the formula to be applied should contain the three factors, involvement, activity and the weighting (harricad).

My recommendation to the Convention was:

"That the scoring system used to determine the winning Division in this contest be changed in such a manner as to retain the concepts of Participation and Activity as factors within the formula."

I then went on to say that "The current formula effectively deletes the participation element."

I have perceived the rules this year with practically no changes from last year and with the incoming FCM I will be handing the reins of appointment over to him with a copy of the references quoted, previous details provided to the Federal Council on this subject and a strong recommendation that the proposal should be implemented and applied by him to the 1967 Remembrance Day Contest.

JOHN MOYLE MEMORIAL FIELD DAY CONTEST

I quote directly from my recommendations

"That this be an 'HF only' contest"

"That this be an 'HF only' contest for the National Field Day Contest. It is interesting to note that this approach is adopted by quite a number of other national societies. VHF was added and recent evidence is that VHF operation does not attract a great deal of interest. For 1965 it was deleted as a separate section with not much comment being received in 1966. An attempt to encourage VHF participation with distance multipliers applied. The present rules seem biased towards VHF operation insofar as scoring is concerned. Thus a genuine attempt to improve the contest has resulted in an imbalance."

"See also the Discussion Paper, recommendations regarding the Ross Hull Memorial VHF/HF Contest in the letter from Amateur Radio Club from *Amateur Radio* April 1967 issue."

The decision of the Working Party was minuted as follows
"John Moyle Field Day — create two sections HF and VHF/HF"

It appears that the decision goes part way towards adopting the recommendation made by the committee that TWO contests will be run. One, an HF Field Day Contest and the other a VHF/HF Field Day Contest. At this stage, I am somewhat still surprised, as the evidence provided to anyone who has looked properly at the subject is that there appears to be little interest in VHF field day operation as such. This proposal will involve the creation of at least 40 separate sections in the John Moyle Memorial Field Day Contest. You find that surprising? Well, they will be sections (a) to (j) inclusive for HF and 24-hour Division, 24-hour Division and VHF 24-hour and 24-hour D visions.

I will venture to say at this stage that this seems to me to be somewhat ridiculous, however I provide this information to allow members to be

able to discuss same, provide their comment and also to put the details into print in a formal fashion for the guidance of our new FCM.

ROSS HULL MEMORIAL VHF/HF CONTEST

My recommendation to the Convention was "That this contest be abandoned in its present form and that it be replaced with a VHF/HF Field Day Contest bearing the Ross Hull name."

I also stated "See Discussion Paper, Notes in *Amateur Radio* April 1967 issue and remarks from the 1966 FCM Annual Report."

The Ross Hull Contest has had an incredible history of problems going back for many years. FCM after FCM has tried to come to grips with the problems of such a contest with little success.

It would seem that the results of this contest have been dependent on such as a prime location under one set of rules, eg Kerry VK5SU, when he was located at Ceduna in a prime geographical location for long distance size metre propagation and won it easily against all comers for several years. It has been transferred on or under more recent rules whether or not you had equipment and specialised in VHF/HF/Microwave bands up as far as you could go. In the latter case there would be only several stations in Australia who could hope to win the contest. In other words, it became an "elitist" contest.

Now, do not wish me to say that I thus decry the efforts of any of our "VHF/HF and above" enthusiasts. In fact, I give them great credit for their dedication to a particular area of amateur radio activity. I do not believe though, that contesting and experimentation necessarily go hand in hand, nor that contests should be such as to obviously restrict the number of operators who could enter with a reasonable chance of success.

I have received a few letters on the subject which indicate that those writing seem to have only their own outlook on the matter. No one has come up with any other suggestions which would help to expand our ideas and horizons and encourage an increase in participation in the Ross Hull Contest.

I did circulate a "Discussion Paper" to all Divisions in May, 1966, however I received the courtesy of a reply from only ONE of the Divisions. That is really how much interest there is.

I must acknowledge the great help that Eric VK5LR has been to me as, without Eric wishing for any kind of publicity, he most instrumentally making proposals to try and breathe some life back into the contest. Between us, I could rightly claim that we have given the Ross Hull Contest more publicity than it has received in ages. We have tried quite a few different approaches, all to no avail.

I again wish to point out in no uncertain terms that the measure of success of a contest can only be shown by the numbers of entrants in the contest. That applies no matter how many people claim that they gave out numbers. If they did not put in a log they cannot be counted. Some people would claim otherwise, however I would ask where is their proof? Such an approach as accolades by the press, the most instrumental and I venture to suggest that they have not really had too much to do with organising contests.

The Convention answer to my recommendations was "Change scoring to locator squares — Maidenhead System — create all band experiments and limited bands contestants section. Adjust timing to commence Boxing Day for approximately three weeks."

My Comment: Locator Squares approach does not answer the problems. It is perhaps fine for Award purposes. How do Locator Squares provide an answer to scoring anyway? All band experiments and limited bands contestants are virtually what we have had with Eric and myself trying to solve the problem. This has not working (See log entries for the last several years). I have no idea just how well Boxing Day for three weeks will go down with most people. Many suggestions up to this point indicate that the Ross Hull Contest always ran for too long.

Over to you for comment and I am sorry that I just have to drop this one in the lap of my successor.

UNWIND CONTEST

Don VK5MOO, has done a great job in this contest for quite a number of years. I respect his efforts and I know that he will understand my approach as he is always a great guy to make contact with. My recommendations read "That incoming FCM consider a change of rules to restrict the number of times a station may consecutively be awarded the trophy."

"An excellent effort has been put up by VK5NOO in winning this contest for the last three years. It may be considered undesirable should this station have further consecutive wins."

Now again, let me not think that I am having shot at Don VK5NOO. There is, however, precedent for such suggestion. In quite a few of the international contests, the convention which follows the lines proposed. I surely think that it is only human nature for people to stay in the situation as presented that there is no point in them entering a contest if the same person is going to continue to receive the trophy.

I say this without fear or favour, and leave you to judge the merits of the suggestion. I would also like to say to Don, "Go to it mate, and all the best to you." The rest of my report was of small event, so I will leave the subject of the Federal Convention at this point.

Recent copy received from Frank W1WY, provides the announcement that, Katsahi Nose F6JLJ, has been selected to the Contest Hall of Fame this year.

In determining eligibility, the Contest Hall of Fame Committee uses the following parameters in considering their decision. The nominees should have made extraordinary and unselfish contribution to the sport of contesting often at great personal sacrifice of time and resources. They must also be individuals who wish to see the enjoyment of the sport by others over a long period of time. Examples of activities which meet these criteria include the engineering, maintenance and operating of leading-edge contest stations, the planning and support of contest expeditions (DXpeditions) coinciding with major DX contests, and the conception, development and administration of contests.

Katsahi Nose, was first licensed in 1932 as K6CGK, while he was a junior at Honolulu McKinley High School. In those early days, Hawaii was considered part of the US Sixth Cir District and there was no K6H prefix. His first rig used a 210A tube and was powered by a 45 volt battery. He operated on 160m and over the next few years, he made six months without an answer, until he suddenly made consecutive contacts with WSAM, W5CWH and W6WEN. Nose had stumbled across the ARRL DX Contest, and he never forgot the thrill.

In 1934, Nose entered his own station in the ARRL DX Contest for the first time and finished in 12th place in Hawaii on CW. In 1935, he moved up to this place and over the next few years, he became the man to beat, making the top score in Hawaii in four of those years. In 1935, he entered the ARRL Sweepstakes for the first time and was top score for his section on CW.

Prior to World War II, the contest we know today as the CW WW DX Contest was sponsored by Hezra's Radio and was called the Hezra's World Wide DX Contest. Unfortunately, there was only one contest before amateur radio was silenced for the duration of the war, but the first CW winner of that contest was Katsahi Nose K6CGK, using a Vee beam and a four section 8JK. In that depression period, economics dictated that Katsahi home-brew his equipment with whatever was available and he made his own capacitor using tinfol from cigarette packets on a waxed paper. His variable condensers were fashioned from refrigerator ice trays.

Nose has consistently been a "giver", not a taker, to amateur radio. He is the author of 30 technical articles in major amateur radio magazines, including a contest related article on capacitor projects such as loading a tower on 160 metres, constructing home-brew rotating towers and making lightweight beams. He served as the President of the Honolulu Amateur Radio Club for several terms, was a charter member of the WARC-79 Advisory Committee, served on the ARRL Contest Advisory Committee, representing all the US Sixth

The Sprints are open to all operators in VK, ZL and P2 call areas.

The time period has been shortened to one hour.

Only VK, ZL and P2 contacts can be scored.

The National Sprints are endorsed and supported by the South Australian Division of the Wireless Institute of Australia, which will provide certificates and trophies.

The reasoning behind the National Sprints is this — there are too many "big" contests each year, they require a lot of time and the rules are complex, thus discouraging many operators from participating. The National Sprints are short, sharp and simple requiring a minimum of time with no providing a significant operating challenge.

Object of the Sprints

The operator's basic goal in the Sprints is to make as many contacts as possible (without duplication) during an hour of operation on a single band. Any contact with a VK, ZL or P2 station on 80 metres during the Contest Period can be counted, but a station may only be claimed once.

Eligibility

The National Sprints are open to any licensed amateur or group of amateurs using a single call sign (eg club stations), anywhere in Australasia (VK, ZL and P2 call areas).

Contest Period

1200-1300 UTC July 11, 1987 (CW Only)

1200-1300 UTC July 18, 1987 (Any legal phone mode)

Frequencies

For the CW Sprint, frequencies between 3.500 and 3.700 MHz may be used.

For the Phone Sprint, frequencies between 3.535 and 3.700 MHz may be used.

Regulations

Irrespective of any provision contained in these rules, operators are reminded that they must operate in accordance with the terms and conditions of their respective licenses and applicable regulations.

CONTEST CALLS

CQ Sprint or CQ Test or CQ Contest

EXCHANGE

Minimum exchange for a valid contact will consist of signal report and a three digit serial number. The serial number may start at any number between 001 and 999, but will revert to 001 if 999 has been reached.

Logs

Each contact log must show for each contact the time (UTC), call sign of station worked, report/serial number given and report/serial number received. Each log must be accompanied by a cover sheet showing the date and name of the Sprint (CW or Phone), the total number of contacts claimed, and a statement that the operator has abided by the rules of the contest, signed by the operator. Any special conditions such as QRP or mobile operation should be mentioned in the statement.

Logs are to be in the hands of the Society no later than Friday, August 14, 1987, and can be addressed to National CW (or Phone) Sprint Manager, c/-AHARS, PO Box 401, Blackwood, SA. 5051

Awards

Certificates will be awarded to the highest scorer in each VK call area, ZL and P2 for both the CW and the Phone Sprints. Trophies will be awarded to the outright winner of each Sprint.

Certificates may be awarded to other operators whose performance was, in the opinion of the organisers, exemplary.

Any entry which is patently in violation of the rules or spirit of the Sprints, or which contains an excessive number of claimed duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed), may be disqualified.

The decisions of the Society in respect of the interpretation of these rules, granting of awards, or disqualifications will be final.

Thought for the Month

Nothing is impossible to a man who hasn't got to do it himself.

CONFIDENCE WORKSHOP

A VK6 Pre-examination Innovation

Harry Atkinson VK6WZ
5/87 Railway Parade, Mount Lawley, WA. 6050



Practical Morse Key Demonstration. From left: Dave VK6W, Bart VK6CH, Barrie VK6AR, Larry VK6ZLW, Malcolm VK6LC and Glen VK6KY.

Photograph courtesy Andrew Baumann VK6WB

Bruce Hedland-Thomas VK6OO, WA Divisional President speaking at the WIA "Confidence" Workshop held on Saturday, April 11, VK6 Practice Morse Co-ordinator, Malcolm Johnson VK6LC, had spent weeks organising a pre-AOCP examination exercise designed to instill confidence in candidates, give them practical experience in an environment as much like the examination room as possible and place special emphasis on Morse sending — something which hitherto had been more or less left to each candidate's own devices. Bruce, who had acted as chairman throughout the proceedings, outlined what Malcolm had planned, what was to happen and named the lecturers, demonstrators and other volunteers.

There were 21 student participants from the young to the seniors and a volunteer staff of 19. The latter included off-duty DOC staff, rostered operators from the on-air VK6WIA practice sessions and various office-bearers and council members from the Division.

The hall was set out with adequate tables and chairs, PA and recording/replay equipment, plenty of Morse keys and sufficient 'kits' for each student to have one. The kits providing writing paper for the various tests and an authoritative paper (illustrated) on how to learn and study code sending and receiving.

Students came from all over the Perth metropolitan area, as well as from Fremantle, Australind, Manangaroo and Kilmessie. Each demonstrator took a particular aspect of code and dealt with it clearly and concisely using taped signals for receiving and various hand keys for sending. In sending, the correct use of the commencement signal and end of message signal and the right and wrong way to correct a sending mistake were demonstrated.

DOC officers were at great pains to point out that the Department was not staffed with organs, nor was it in the business of failing people just for the fun of it. It was obvious from comments afterwards that candidates found it a novel and heartening experience to meet with examiners in a casual, off-duty atmosphere while still learning valuable points about the code. It seems that

"You're all very special people here today. . . because you're taking part in something which is unique in Western Australia. Nothing like this workshop has ever happened before."



Workshop 10 WPM Receiving Test. Photograph courtesy Andrew Baumann VK6WB

when these candidates meet Glen and Barry again at the DOC examinations in May they will feel at ease with people they have already met and with whom they have swapped experiences and problems.

To some O's present it came as a shock to hear an exam ner say he had known cases of examination candidates who had never previously held a Morse key until they reached the examination room!

Excellent advice was given on the importance of setting the key to one's own choice of gap and tension before starting the sending test — and — when receiving — the need to keep going and not stop writing to puzzle over a letter missed, and the wisdom of using block letters if one's handwriting is not the best.

Candidates were advised to look on the Morse receiving examination as a test of accuracy, not a test of comprehension.

The program began at 9 am and at the conclusion of the three-and-a-half hour workshop many of those present said it had given them an entirely new outlook on the Morse side of the AOCP examination — and a very changed view of DOC staff. Prase was bestowed on VK6LC, the WIA and DOC for a really professional exercise. These confidence-building workshops could well become a regular feature in VK6.

Thought for the Month

Beware of half truths — you may have the wrong half.

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With every Hand-Held sold this month we're

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Meter valued at \$29! Cat D-1303

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Just what your mobile needs. The PA-3 Car Charger is intended for operating 10.5 volt transceivers from a car cigarette lighter socket. Includes charging as well as power and now it's **BELOW COST!** The FNB-3 pack as well as a dry-allye transceivers. Cat D-2839



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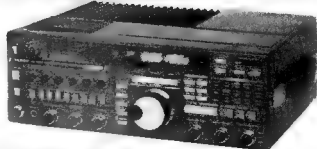
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Take a bow Yaesu! The FT767GX is everything when it comes to transceivers. It's a transceiver could get up and dance this one would be the Prima Ballerina! The very latest in technology so you can drag in those illusive signals or to make sure your signal is heard above the QRM. All modes on ALL amateur bands, continuous coverage triple conversion superhet receiver, built in automatic antenna tuner, die cast aluminium and ducted cooling giving an incredible 30 minutes output at full power and much, much more. Try Yaesu at DSE — the advantages are easy to see! Cat D-2935

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LINTON-HARRISON LICENCE RESTRUCTURE PROPOSALS

This document follows on from the discussion paper: *Amateur Radio — Future Direction* co-authored by Jim Linton VK3PC and Roger Harrison VK2ZTB, in December 1985. Like that document, its purpose is to promote discussion. It does not necessarily reflect the official viewpoint of the WIA or any Division of the WIA.

The need for restructure of Australia's licence system has been ignored by the 1987 WIA Federal Convention, proposals to give Novices the entire two metre (144-148 MHz) band.

That proposal, generated at the Convention, and supported by Federal Councillors from all Divisions except VK1 arose out of two considerations.

The first was the desirable 'common band' for all grade of licence.

The second, which was the major factor in intense lobbying at the Convention, was the impact of the JA/VK reciprocal licensing agreement.

That agreement, effective from February, has consequences for the Novice licence, and Australia's licence restructure generally.

Japan has a long-established licence system with an exam of a lower level than the Australian Novice and no telegraphy exam. The JA Telephony licensees operate on low power on HF bands other than 10 and 14 MHz.

Under the JA/VK reciprocal agreement such JA licensees visit Australia have been given permission to use FM (10 watts) on all bands 50 MHz and above.

How the agreement was reached, the WIA's involvement, and the full story about that exercise is unclear. But what is plain is that the agreement now has a direct influence on the licence structure in Australia.

The fact is that should an Australian Novice licensee take the Department of Communications to the Administrative Appeals Tribunal on equal opportunity grounds, DCC could not defend the denial of Australian Novices telephony privileges on all bands 50 MHz and above. It has brought about a de-facto Telephony licence in Australia.

In hindsight a two-year tenure should have been placed on the JA Telephony licensees operating in Australia under the reciprocal agreement. It is essential that the agreement be re-negotiated to include a tenure.

To attract the bottom rung beginner interested in radio and to expose them to the broad scope of the hobby of amateur radio, a Telephony licence should be introduced in Australia.

The theory syllabus for this licence could include the necessary elements of basic electricity, magnetism, radio frequency generation, modulation, propagation and interference.

This grade of licence could have FM telephony privileges on 52-500-54,000 MHz, and a segment on 70 cm, at a maximum power of 10 watts.

The Australian Telephony licence must have a limited tenure of two years.

An integral part of restructuring the licence system is restoration of the Novice licence syllabus and question bank pool. It has become clear that the Novice licence with its recently revised syllabus, no longer adheres to its original intention or definition.

The Novice licence should be given additional privileges identical to the Telephony licence on six metres and 70 cm, but with a maximum power output of 30 watts — plus SSB on the segment 52 030-52 200 MHz.

The enhancement for the Novice proposed above was designed to be greater than those given to JA Telephony licensees under the reciprocal agreement, meet the common band requirement, yet are not a disincentive to upgrade by giving Novices the entire two-metre band.

A further aspect of licence restructure should be the introduction of an Intermediate licence, to serve two purposes.

Firstly to bridge the gap between the Novice and ACP/Limited licences, and secondly to attract those people who increasingly these days gain an interest in electronics through computers and computing. It is an essential step if the Amateur Radio Service is to survive by being more attractive to people of all ages.

The Intermediate licence would require a candidate to have passed the Novice theory, plus a supplementary exam on elementary digital subjects and FM. It would have the six metre privileges afforded to the Novice licence, plus 70 cm segments 433-435 and 436-440 MHz covering FM simplex FM repeaters and digital modes, but selected to avoid the satellite band.

A candidate who passed the Intermediate theory exam/s and the Novice telegraphy exams, would have the Novice HF privileges, plus permission to use RTTY, AMTOR, ASCII, FAX, SSTV and Packet on the segment 28.200-28.300 MHz.

The data mode privileges would enable Australian Intermediate licensees to communicate with USA Novices who have those privileges on that band segment.

Being examined on FM, the Intermediate licensees should either be permitted into the FM international segment 29 000-29 700 MHz and/or FM repeaters be allowed in Australia within the current Novice band.

Intermediate licensees should have access to the 1 200 GHz band in the future.

Holders of the Combined Novice/Limited (K-call) licence would automatically be given the digital and other HF privileges of the Intermediate licence.

The above restructure of Australia's licence system would make the hobby appropriate to today's technology and improve its attractiveness to potential radio amateurs. It sets out new entry points into the hobby, and a logical upgrading path leading to increased numbers of licensees with ACP and Limited licence qualifications.

The particular privileges proposed in this document represent a balance between a number of conflicting considerations including the consequences of the JA/VK reciprocal agreement. These privileges are intended to encourage upgrading by those who have the motive to attain the skills.

The aim is to give newcomers an attainable entry into the hobby. Later the Intermediate licence gives a taste of digital modes, encouraging further upgrading.

LINTON-HARRISON LICENCE RESTRUCTURE CHART

Unrestricted (ACCP)	All bands and modes. Full power
Combined (K-Call)	Limited privileges plus Intermediate HF privileges.
Limited	All bands 50 MHz and above. No mode restrictions. Full power
Intermediate (without CW)	Novice six and two metres, plus FM and dig. on 70 cm.
Intermediate (with CW)	As above plus Novice HF bands, 10 metre digital and FM
Novice	HF 80, 15 and 10 metres. S x metre SSB and FM. 70 cm FM VHF/UHF power 30 watts
Telephony (Two year tenure)	Six metres, 70 cm, 10 watts FM

BEACONS AND COORDINATORS

Tim Mills VK2ZTM
FTAC BEACON CO-ORDINATOR
PO Box 204, Willoughby, NSW 2068

This month I will briefly report on two items from the recent Federal Convention.

A draft of the Beacon Policy Paper was presented. There is further work to be done during this year, particularly in the microwave segments. Input is still required from those with an interest in planning the orderly operation of the various beacon systems. By now most beacon groups should have received a copy of the draft report. Anyone interested in seeing the report should contact your local Federal Councillor or you may write to the address shown above for a copy to be sent to you.

The agenda item concerning paper interference to the top end of the two metre band, in particular, was discussed and has been referred to FTAC for investigation and reporting back to the Council. This subject will be expanded in detail in this column in a later issue, but it is an area requiring considerable input from both amateurs and repeater groups.

There is concern from time to time about operation on the old two metre channel known as "B" — 146.000 — and its effect on the adjacent satellite segment. The subject was first raised at the Albury repeater meeting in July 1972, where it

was decided that its use as a net frequency should be discouraged. Some of the satellite systems have used frequencies which fall close to the sidebands of a transmission on 146.000 MHz. This frequency has not been included in any recently published band plans. The International Amateur Satellite Service Sub-band extends from 145 800 to 146 000 MHz, so if a guard band is included it extends from about 145 750 MHz as a lower limit to 146 010 MHz as the higher limit. The first active frequency above this is the input to repeater 8625 which is on 146.025 MHz.

Roger Harrison's

Australian Electronics

Monthly

Incorporating Elektor Electronics

**DID YOU MISS
THE JUNE ISSUE?**

*These were some
of the features —*



DIGITAL COMMUNICATIONS

Morse was first, radioteletype followed, and now we have packet radio! Here's a rundown on the various 'digital' communications modes and techniques and a guide to getting on the air.



USING THE MICROBEE IN YOUR SHACK

Geoff Wilson VK3AMK shows how to put your Microbee to good use — printing QSLs!

BUILD A STAND-ALONE V.22 MODEM!

Here's a great little high-speed 1200 bps full duplex modem. Don't throw out your old 300/1200-75 modem to update at great expense, just build our new modem and get going!



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How's DX?

Ken McLachlan VK3AH
Box 39, Mooroolbark, Vic. 3138

THE TIME HAS COME

Regrettably the time has come that I have personally found that writing this column is no longer a challenge. This is due to a number of factors.

The six years that I have had the honour of collating the material and writing many thousands of words has been a very gratifying experience. There has also been a thrill from the hundreds of letters of support, comments and notes of thanks received.

At times it has not been easy to foresee future DX, as I am not a reliable astrologer and even if I were it would be a hazardous task.

Over the period I have made many friends from all continents and my sincere thanks go to those that have contributed and supported my efforts, including our family, particularly my wife Bett. It is hoped that the readers have gained some interest and lots of new countries. My sincere thanks to three editors of the magazine over the period, all contributors and to every reader. Thanks again and good future DX to you in Sunspot Cycle 22 which is just around the corner by my reckoning. Nevertheless, the DX is always there, if you are persistent.

I have commenced one article for this magazine concerning commercial movie theatre projectionists, past and present who are amateurs. I have received a lot of input and still a lot of research is required, but it will appear later this year or early next year depending on the Editor's indulgence.

AUSTRALIAN DX ACHIEVEMENT AWARD

The late Hugh Spence VK6FS bequeathed a sum of money to the VK8 WIA Division on his untimely death in 1984. The VK8 Council has decided to create three perpetual annual DX Achievement Awards in the memory of an amateur who enjoyed chasing the elusive DX station and probably gained more satisfaction in assisting some other amateur to gain a new country, than receiving the QSL himself.

The award in Hugh's memory will be known as the *VK8 DX Achievers Award* and is open to all VK amateurs who submit proof of having worked and confirmed

- (1) 100 DXCC Countries
- (2) 150 DXCC Countries
- (3) 200 DXCC Countries

on any mode or frequency except the WARC Bands and with in the terms of their licence during one calendar year commencing on January 1, 1988, Australia's Bi-Centennial year.



The late Hugh Spence VK6FS, with his devoted companion Reece.

The three awards consist of one years free membership to the recipients WIA Division plus an engraved plaque to commemorate the operators prowess.

Watch for further details in *Amateur Radio* and it is felt that this award is quite fitting to the memory of Hugh, a gentleman of unblemished integrity whom it was a pleasure to know and call a friend, which he was to so many.

A MEANINGFUL REPORT

The mailbox has been full of letters regarding my recent remarks about dubious reports. For once no one has dissented from my views, and that is quite refreshing. I am still amazed that amateurs from all continents still continue with the 599 or 59 report and consistently ask for repeats during the QSO. Thanks to all readers that took the trouble to write and concur with my thoughts.

ST PETER AND ST PAUL'S ROCKS

From all reports, not many were able to subscribe to their State's lottery as it appears that only three or four recorded the last expedition's call sign in their log. Ladies and gentlemen, all I can say is better luck next time and it may be a while unfortunately, as it is quite a costly exercise to place a 'crew' in that area and the economic down-trend is applicable to all continents unfortunately.

CONFUSION

Please do not send any QSLs to Mary Ann WASHUP for AP9P. This 'con-merchant' has caused Mary Ann some problems as she has never heard of him or her let alone discussed acting as the stations QSL Manager. Never mind Mary Ann, every DXer throughout the world knows your policies and track record which is unsurpassable.

GOOD NEWS FROM BANGLADESH

It appears that the authorities in Bangladesh are reviewing the licensing of nationals during this year. This must be very heartening to the radio-orientated in that country and let us all hope that it will not be too long before some genuine S2s appear in the logs. One will have to watch out for the unscrupulous who will pirate the prefix just to gain a 'pile-up' on their frequency.

BEST SHACK PICTURE

The photograph depicted this issue is the shack of Gil VK3CO. This contest will be judged by Greg and his staff at GFS Electronics, who have kindly donated a magnificent prize for the winner.

Ironically I am going to bequeath this segment of my notes to Gil, who hasn't been advised of the

fact as yet. I am sure Gil will carry it on and please send all pictures to him and whilst doing so, participants may care to encourage him with some ideas on his excellent column of *Pounding Brass*.

Gil's shack is less than a metre wide, the desk is just over a fraction of a metre deep, has an area approximating just in excess of one square metre in floor area and to save on coaxial cable it is nearly five metres above ground, in an area above a stair-well that Gil has added a window to and lined for comfort.

The key to the photograph — on the left of the shack is a 'long wire' tuner, which any of six switched antennas can be selected for the HF bands. Also this is the termination of two two-metre and a 432 MHz coaxial cable fed antennas. The right wall occupies the output of 12 amperes at 12 volts from batteries and solar cells.

Other equipment on the table area consists of a UHF FM coupled to an antenna directed at the Mount Stanley Repeater, a 35 watt two-metre receiver. Also pictured is an IC251A and IC751A of course with a CW Filter fitted.

Gil really knows how to fit a lot of equipment into a small space.

GOING QRT

Peter 9V1TL will be missed when he goes QRT this month. Peter has been a stalwart to the hobby on all bands but particularly to 20 metres and the South East Asia Net on 14 320 MHz at 1200 UTC which is QRV each day of the year. Every good wish from all who have received assistance from you over the years Peter and please 'pop up' from your new QTH soon.

THE USER PAYS CONCEPT

The saying is almost worn out, but it has become a catch line in other countries apart from Australia. The gentleman that created it should be proud, as it appears a number of countries have used the same approach with their radio licensing fees. Near neighbours, please do not blame us and remember we were hit with the same first.

UNIQUE YES — VALID NO

It appears that Jerry, operator of 4W1AA, got verbal permission to operate outside of business hours from the authorities and thought that the suffix of AA was as good as any for the first amateur operation from that country for over a decade. Does Don Search WAAZD Manager at the ARRL DXCC Desk suffer from ulcers? With all the contentious items necessarily placed before him he must be a number one candidate.



THE VALID ONES

The good news is that 5A0A, A61AA, A61AB, 5D00X, VU4APR/NRO and XF4DX cards are all 'true-blue' and acceptable for DXCC. Now for the bad news — A51PN (from data unknown as my contact with Pradhan was accepted), A6XB, A6XL, 5U7LD and stations signing from the following countries Afghanistan, Angola, Burma, Ethiopia, Mozambique and South Yemen are not. There may be a further update sooner than one expects.

THE WAVE BANDS

The member societies of the following countries have notified the International IARU Secretariat of the availability of new bands for their use.

10MIZ BAND

10 100 to 10 150 MHz: Algeria, Andorra, Antigua and Barbuda, Argentina (10 1005-10 103, 10 119-10 1215 and 10 1435-10 14650), Australia (10 126-10 134 and 10 1375-10 1455), Austria, Bahamas, Belize, Bermuda, Botswana, Brunei, Canada, Cayman Islands, China, Colombia, Costa Rica, Cyprus, Czechoslovakia, Denmark, Djibouti, Dominica, El Salvador, Faroe Islands, Fiji, France, Gabon, German Democratic Republic, Federal Republic of Germany, Gibraltar, Greece, Grenada, Honduras, Hong Kong, Indonesia, Ireland, Israel, Italy, Japan, Republic of Korea, Kuwait, Luxembourg, Malaysia, Malta, Mauritius, Monaco, Montserrat, Netherlands, Netherlands Antilles, New Zealand (10 100-10 127 and 10 133-10 150), Nicaragua, Nigeria, Norway, Panama, Papua New Guinea, Peru, Philippines, Portugal, San Marino, Senegal, Solomon Islands, South Africa, Sri Lanka, Sweden, Switzerland, Syria, Tonga, Trinidad and Tobago, Turkey, United Kingdom, USA, Vanuatu, Western Samoa, Yugoslavia and Zambia.

18 MHz BAND

18 060 to 18 180 MHz: Algeria, Andorra, Antigua and Barbuda, Argentina (18 073-18 0765, 18 0835-18 0895, 18 0965-18 1095, 18 1215-18 149 and 18 1515-18 1675), Australia (18 071-18 079, 18 101-18 109, 18 121-18 134, 18 141-18 149 and 18 156-18 164), Austria, Bahamas, Bahrain, Botswana, Brunei, Canada, Cayman Islands, China, Colombia, Costa Rica, Cyprus, Denmark, Djibouti, El Salvador, Faroe Islands, France, Gabon, German Democratic Republic, Federal Republic of Germany, Gibraltar, Greece, Grenada, Honduras, India, Ireland, Israel, Italy, Kuwait, Luxembourg, Malaysia, Malta, Mauritius, Monaco (18 103-18 116, 18 129, 18 135 and 18 165), Montserrat, Netherlands, Netherlands Antilles, New Zealand (18 100-10 127 and 10 133-10 150), Nicaragua, Nigeria, Norway, Oman, Panama, Peru, Portugal, San Marino, Senegal, South Africa, Sri Lanka, Sweden, Switzerland, Syria, Tonga, Trinidad and Tobago, Turkey, United Kingdom, USA, Vanuatu, Yugoslavia and Zambia.

24 MHz BAND

24 890 to 24 990 MHz: Algeria, Andorra, Antigua and Barbuda, Argentina, Australia (24 896-24 904), Austria, Bahrain, Botswana, Cayman Islands, China, Colombia, Costa Rica, Cyprus, Denmark, Djibouti, El Salvador, Faroe Islands, France, Gabon, German Democratic Republic, Federal Republic of Germany, Grenada, Honduras, India, Indonesia, Ireland, Israel, Italy, Kuwait, Luxembourg, Malaysia, Mauritius, Monaco, Netherlands, Netherlands Antilles, Nigeria, Norway, Oman, Panama, Papua New Guinea, Peru, Portugal, San Marino, Senegal, South Africa, Sri Lanka, Sweden, Switzerland, Syria, Tonga, Trinidad and Tobago, Turkey, United Kingdom, USA, Vanuatu, Yugoslavia and Zambia.

Now is the chance to get those antennas in the air for these bands and when the new Solar Cycle commences you will be in business to notch up quite a few countries. They are not acceptable for DXCC, but it is quite a challenge. Who will be the first VK to make a 100 countries on each band? No cheating, that is 300 two-way contacts on the three bands.

(Thanks to Region 3 News — Number 23 — December 1988).

APOLOGIES

I was proved wrong, as were many other DX Editors, regarding the DL7FT/SVIA expedition by Frank. I didn't regard it as a legitimate expedition, neither did the Greek Radio Society. I apologise and congratulate you Frank on your persistence in convincing the ARRL DXCC Desk to accept your credentials. You have achieved something that the neighbours to the scene have been unable to do. It has been a long drawn out affair but through investigation by the ARRL, is typical of the credibility of the ARRL DXCC.

Now that one has been put to 'bed', when is the next generation going to occur and by whom?

TECHNICAL OPERATING

Some operators on the bands are complaining about 'bad signals' particularly from an area where 'home-brew' is a must, if one is going to get on the air.

Please politely let the offending station that his or her signal is not Q5, or they are drifting around spluttering or whatever is concerning you.

Most amateurs will accept the criticism in the spirit that it is made. Some will not but that is life. Please let us nurture the 'home-brewer' and assist him, as many others have also heard, some terrible signals from all points of the globe, the majority using 'black boxes' that are being over-driven. We all had to have a first QSO and I know a VKs who many years ago built a magnificent 40 metre transceiver and was not brave enough to put it on the air. He eventually did put a signal into the ether and it was very Q5, however he is one of many who are wary of placing a signal that is not Q5 in the spectrum. Is this one of the reasons that quite a few amateurs are reluctant to build and experiment? There are a considerable number of talkers across the bands that have never used a soldering iron or possess one, let alone those that even don't possess a multimeter.

RESOURCES CALONE FOR THE WEST

The VKs who are interested in clubs are very lucky in having a Telecom Public Relations Resource Centre at their disposal. This centre loans free of charge videos, films, displays, even historical and modern telephones are available for that special demonstration.

Think how an amateur communications display promoting our hobby would be set off with these extras.

It is believed that quality brochures covering telecommunications in Australia are also available for such events. It has been said that the information available is quite unique and a source of knowledge that is invaluable to anyone studying communications.

Further information may be obtained by phoning Colleen Chipper or Rosemary Pearce on (08) 420 7018. Mention that you saw it in AR!

SPRATLY ISLAND

It seems that China is again occupying Vietnam of invading one of the islands in the Spratly area. A Foreign Ministry spokesman said that Vietnam had again been called upon to withdraw its troops from all occupied islands in the group which are strategically important because of the proximity to vital shipping lanes.

Again I suggest that this area be deleted from the DXCC list of all societies, before some amateur or amateurs get into serious trouble or lose their lives in a foolhardy attempt to activate this prefix.

GUESS WHO?

The newly appointed Director of Telecommunications for the Republic of Nauru for a period of two to four years has held many call signs including his latest of CZ1A. Some of the previous calls he held are F4W0Y, VQ30Y and KH6GLU. Have you guessed who it is yet?

The answer is none other than Ed ex-VK4LX and VK8XX.

QSL to PO Box 17, Republic of Nauru.

EVENTUALLY SETTLED? ?

Willy de Roos ex-VK9XR/MM, a gent who has been everywhere has eventually settled in VK6. Willy has taken out the call of VK6AND.

PETER 1 ISLAND

One reader of this column did take my advice of buying a sotted ticket to celebrate working the island and like myself received zero dollars. Bad luck Gwyn and if you had won, I know that you would have passed on my commission.



Did you work Peter 1 Island? Here are the operators of that first. Kere LA2GV/3Y2GV, Luis LU1BR and Einar LA1EE/3Y1EE taken during a stopover on the way home in Buenos Aires.

—Picture courtesy of QRZ DX and WAZUYU

ANOTHER PREFIX

Exasperation! It is really getting necessary to have a computer mind with a lot of RAM to keep in touch with all the prefixes that are floating around the spectrum of late. The newest is C33 which will be activated next month by a group of Spanish operators. Another one was CN32FG which was used at the Casablanca International Fair. Another K4TA, was on 'Tanger Island (OTA NA-83) and was operated by the members of the Maryland Apple Dumpling Radio Amateur Society better known as MADRAS.

PIRATES WEEK

Another special call 2F10PW, has been allocated to the Cayman Amateur Radio Society for 'Pirates Week' which is to be held between October 24-31, this year. A special card has been struck and may be obtained by sending your card for any QSO with the call plus US\$1 to CARS, PO Box 1029 Grand Cayman.



One of the special cards.

CENTRAL AFRICAN REPUBLIC

A newly licensed YL amateur is Margie TL8DN, who is getting amongst it quite well, but please give her a go when you hear her trying to control a pile-up. It can be quite a frightening experience to be on the receiving end and I have heard seasoned operators go QRT or QSY under the strain.

NORTH COOK ISLANDS

Ronald 'Bing' Crosby VK2BCH should be still signing from North Cook area. Bing's call last year was ZK1XV and he hoped to obtain it again. All cards for the operation with a SASE to PO Box 344, Forster, NSW 2428. Bing, though a WIA member requests please no cards via the bureau. One question Bing, how will the USSR amateurs and SWLs, receive confirmation of a rare country with no bureau cards?

FREQUENCY STANDARD

Reliable sources indicate that VNG, the frequency standard presently run by Telecom is to be officially shut down at the end of March 1989, due to no other Government Departments being interested in taking the equipment over.

This will leave the amateur, some manners and other users without a reliable frequency or time standard at their disposal, as WWV does not have the coverage or frequencies that are readily tunable on some amateur equipment.

Sad but true, and it all comes back to the economic trend that is affecting our lives at the present.

UNWANTED CARDS

VE5RA and VESSV who operated the calls ZFMM and ZFBSV respectively have advised the Cayman Amateur Radio Society that they do not want the 500 odd cards that are lying in their bureau.

There are going to be many disappointed amateurs. But why go to a semi-remote area, operate through the pile-ups and then not want to QSL. Not everyone can afford the direct postage and isn't that what the bureau are for it really leaves me speechless!

E-phants are supposed to have a long memory and it is trusted that these two operators are treating the same way when they require that 'special card'.

SMILE AWHILE

Some quotable quotes. "The secret of success is sincerity - once you can take that, you have got it made!" and "Remember madness takes its toll!!.. We've always been crazy... but it keeps us from going insane!!" and "Just when you were winning this 'rat race'... along come faster rats!!!"

These are some of the quotable quotes from none other than Lee KH6BZF, the voice of Rainbow Bay, Hawaii. Thanks Lee for the smile from these and we hope Laura is not subjected to such mirth at the breakfast table. Laura, if you are, you have our sympathy.

THE ARRL DXCC SURVEY

Ross WB6GFJ, drew my attention to the ARRL DX Advisory Committee Survey which will play a big part in structuring the ARRL DXCC that will be carried out next year.

Due to space restrictions I will only highlight a few of the questions. A complete copy is obtainable by sending a SASE to DXCC Survey, C-101A Federal Office, PO Box 300, Caulfield South, Vic 3162. This questionnaire will assist the Committee which has been tasked by the Directors of the ARRL to formulate a worldwide plan. I urge all interested DXers to obtain a copy, answer the questions and post it off to the ARRL as some of the questions such as 'Should DX stations or DXpeditions that solicit donations over the air, be disqualified for DXCC credit?' "Would you like the DXCC country criteria relaxed to allow for more countries?" and 'Are you in favour of a 'fresh start' with the DXCC program as happened in 1945?'

These are three of the 19 questions which I again urge you to obtain and send off to John W4FRU, and his fellow helpers, as a considerable input a request from all areas. Australasia in itself constitutes nine different countries, approximately three per cent of the present DXCC total.

Thanks Ross for drawing my attention to the survey, and I do hope that your operation of F00FB this month is quite successful. Ross will use 14.45, 14.80 and 14.240 MHz and will pick up his VK call during another visit to Australia next month. Melbourne is on his itinerary, as he wants to arrange the Air Mail delivery of the magazine rather than by Surface Mail through the membership and it is trusted that he can eventually meet.

AWARDS

If you go to the Antarctica and operate an amateur station all is well until you go to apply for the Worlded All VK Call Areas award (WAVKCA) and then the fun starts. The rules state that if you are an overseas amateur you require 22 confirmations and a total of 77 if you are a resident VK.

A French, Russian or any other amateur using a prefix other than VK, even if they are operating alongside each other only has to obtain 22 confirmations, yet the VK has to obtain the 77 confirmations to obtain the award.

It has happened, so please let us all learn from our mistakes and amend this anomaly now, backdating the amendment to the date of the

initiation of the award by changing the wording to mean mainland Australia (VK1-VK9 inclusive) and classify the VK0 and VK9 prefixes as overseas amateurs. This alteration would allow those that have operated from these areas to achieve the handsome award they deserve.

SCOTLAND

The special call GB2NTS, was being aired in May from the Culzean Castle in Scotland. Plans are that three other special calls will be heard for June, July and August from other historic locations. A nice certificate is available for all four and QSLs are via the bureaus. No rip off on this one folks.

SOME YL CALL SIGNS

The following YL calls have been worked of late. Clelia ISICV, a YL Club Station OK5YLS, Elizabeth VE7YL, Mary 5W1FM and Mary Ann WA3HUP incidentally UZ9MYL is a YL and QSLs too.

WHY??

Why did the DL operator visiting Monaco have to sign with the 3A before the DL5FF, while the French station put the 3A after his call? Intriguing to say the least!



Bharathi VU2RBI. A dedicated Public Relations Officer for our hobby.

—Photograph courtesy ORZ DX

JITTERY JOTTINGS

Is YAOXX genuine or not? QSL to PO Box 1, Kabel sounds doubtful. ** XUISS is still quite active. ** It appears that Peter OH1RY, after getting all his cards answered eventually, is again thinking of doing another Polish jaunt in October.

** BV0AE will be activated by a group of JA operators. All QSLs to JA1UT. ** If you hear 905YL, give Tina a call. Tina is the 13 year old daughter of 905NW. ** Tom VR6TC, his wife Betty VR6YL and Frank DL6FL are still continuing the schedule that they have been having for a decade. ** Operation Redlight cards are all clear for ARRL DXCC. ** EX3TM was a special USSR call.

** TV8DEC was aired from Le Palais de la Decouverte during May and worked by many VKs. ** 4K1AH is located at the USSR Mirny Base in the Antarctica. ** Bharathi advises that the Nicobar Island plans fell through. No reasons and no intention of any activation was intimated. ** Sierra Leone is using the unusual prefix of Z8L to celebrate 29 years of independence. Is Z8L allocated to that country? Maybe it is like spinning a 'lottery wheel' use what comes up! ** Another P8 has appeared. This one has the suffix of JP. No QSL info was forthcoming so my advice is to save your time, effort and money.

ANOTHER SMILE

Wayne Gregson, a columnist with the Melbourne Sun has picked this little piece of trivia up. Wayne, always with a sense of humour, notes that the Melbourne based computer firm of Webster Computer Corporation has been hitting the United States market recently.

The company has announced the release of a new mini computer aimed squarely at the IBM small business market.

The new gizmo is named Piranha and Wayne says 'go on and ask why?'

It is small, fast, lightweight, with plenty of byte and has been spawned for small business users with cavalier hardware tastes on a PC budget.

You had to ask didn't you?

CW SWLING WITH ERIC L30042/VKS

10 METRES
VK8JQ and Bacons VK2RSY VK5WV, ZL2NH
15 METRES
F4DIO, N1PZURK, VB59G, W4CH, YC0BAQ, YC3KDL, YC7JM and YD2HAX.

20 METRES
DJ3FW, FK8FW, HA1AES, VA2ZCZ, HA6H, H8NHL, HK1ANP, HK8WT, OK3JX, OK2KQ, OK3WJ, PA4KH, RB4XQ, RW6M, UA6NN, UB4DWW, UL3CWW, UL8UO, UZ3AZO, UZ8AXJ, YU4EBL and YV1AD.

30 METRES
DJ2FO, DK5JL, DL8MX, F3NR, F6PFG, G3LQW, G4FH, G2ALP, PA3JHE, 5MA5MK, VE2GZ, VE3NKH, VK0WL, WO2W, W2FJ, W3PA, WB9PL and WB2D.

40 METRES
4N7EP, 4S7RO, 6Y5AL, CQ2OM, 6B3AK, G3SED, G4QOV, H8B8Z, HK1AM, H2ACB, KH3KIC, KB8RQGA, T1QZY, VE3TY, YU1ABA, ZF2KI, ZK2EY and ZL7DE.

50 METRES
K5TV and N4PQ.
180 METRES
ZL1BCK and ZL1L8.

HEARD AND WORKED ON THE WEST COAST

40 METRES 850
C31BL, FT6WA, LT1A, TL8TG, TU3QJ/X3A, V85NT and ZL7AA.

40 METRES CW
3A/DL5FF, FDIACQ3A, AK1H, 8L2OU, G7WQ/MF5, FM8ES, KP2, LUB8Q and VP8C.

50 METRES 850
OYND, PA4AR, TP3BM, TR8JLD, TU4OG and Z81MH, HEARD AND WORKED ON THE EAST COAST ON 20 METRES

5B4SA, BJ3JTU, 9BMAE, 9RBGH, A82EV, BV5JA, BY8RB, CU1CB, JWSV, JY1WL, JH6WDA, Y73CI, KH0AG, LZ3Z, OYB, PA4AR, BV5WT, TULTA, V88RH, VK8LML, Z81AU and Z81FJ.

SOME BUREAU QSL INFORMATION

3A/DL5FF, DL5FF, C31BL, EA3DPP, FDIACQ, 3A/FD/ACK, TL8TG, N4NW, TU3QJ/X3A, FBFLN, and ZF2KI/K1K1.

SOME DIRECT QSL INFORMATION

5B4SA PO Box 1531, Nicosia, Cyprus.
3A/DL5FF PO Box 1407, Kofia, Nicosia, East Malaysia.
9B8GH PO Box 2670, Kuching, Sarawak, East Malaysia.
A82EV PO Box 2, Bahrain, Arabian Gulf.
BY8RB PO Box 46, Jannah City, Peoples Republic of China.
JY1CI PO Box 616, Amman, Jordan.
V88RH PO Box 17, Muara, Borneo.
VY8JG PO Box 655, Puerto Ordaz, Venezuela.

INTERESTING CARDS RECEIVED

Steve VK2PS, has received some interesting cards amongst the hundreds he receps yearly. Listed below are a small selection.
4K1C, 457N, MW, 5W1EK, BJ3, ST, 5JEXE, BR1RPN, 5M2FF, 9BMAE, 9A2V, 9V7DA, EHW3G, CQ3AKK, FK025T, G82SM, HC1OT, H8BN, H818H, H8B8B, H81VC, JWBWDA, KQ4AAC, K1AD, O4EAD, T4BGA, UA1OT, UOASR, V88RM, VE7EPQ, VK0DAE, V85AU, V85JH, VU2AR, VU2PH, XE2EJ, Y88YM, YV1Q, YV4GZ, YF1K, Z81AU and Z81FJ.

KEY
* Card received direct
† From Joseph Land
† Direct Card via Manager

THANKS

Sincere thanks to the Editors of weekly, bi-weekly and monthly publications such as ARRL Newsletter, BARG, QD-QSO, The DX Family Foundation Newsletter, Inside DX, KH6BZF Reports, Long Island DX Bulletin, NAR News Letter, Pacific Radio Club Bulletin, ORZ DX, RSGB DX News, ORZ DX, RSGB DX News and The W6GK0HDX DX Manager List. Magazines including Break-In, DX Post, JA QO, JARL News, KASB DX News, Meteorological News, QST, Police Life, RadCom, Region 3 News, Telecom+WA, Weather News and Westradio to mention a few.

Some of the individual contributors this month include VKs, 2P8, 28CH, 2E8X, 3Q, 3PA, 3Y1, 3DYL, 4B84, 6NF, 6R7W, W8BGRJ, ZL1ABX and staff of the Lyttelton Muriel post Library.

Sincere thanks to all that have made the column possible over the years, good luck DXing and live the famous Bush Bunny cartoon ending with the catch cry, I will say. 'That's all folks' de Ken VK3AH.

Packet Radio

Part 4: HAPN/SADCG MASTER CONTROL SUBSYSTEM

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If you are planning to write your own packet software you may consider installing a Master Control Subsystem, the system discussed here is used in the VADCG TNC. It was originally written by Stu Beal VESMMW, of Hamilton Area Packet Network (HAPN) and Doug Lockhart VE7APU, of VADCG, and improved by the SADCG.

The Master Control Subsystem is essentially a controller and dispatcher for the TNC, by use of a menu which gives options such as choice of protocols, ie AX25 protocol and Vancouver V3 protocol, a Monitor function with various facilities including debugging tools and on-line help. This monitor program is provided for diagnostic purposes during software development. It can be used by those users who are interested to view the link and terminal buffers so you can see the actual form of each packet. Let us look at these functions of the Master in more detail.

RESET

This may be caused by a Power-On-Reset (at switch on) or by pressing the RESET button and is processed within the MASTER module in the following manner.

- 1 The DCD line (pin eight) is held low for about 800 ms and then set high. This can be used by Remote Bulletin Board Services (RBSBS) to sense when the TNC has been reset by a hardware watchdog timer.
- 2 An AUTOBAUD routine is entered which allows the TNC to adjust itself to your terminal's speed and format. Just type alternate commas and periods until you see the TNC sign on with the following text

VADCG Terminal Node Controller
SADCG Master Control Subsystem
January 28, 1985. VK2KFJ

The date shown will be the date of your version of the MASTER and it will be followed by your call sign.

- 3 The MASTER then examines each additional ROM in the TNC. For each ROM it finds, it prints a menu item number and a description of the protocol supported by that ROM. Once all ROMs have been examined, the user may select from the protocols displayed by typing the menu item number. This will be followed by a message to identify the software version.
- 4 The TNC is then ready for use. Alternatively, you may enter a monitor program.

TRAP

TRAP interrupts generated by the TRAP button (if fitted to the TNC) cause control to be passed to the AUTOBAUD routine. Once the AUTOBAUD process is complete, you will enter the monitor within the MASTER ROM.

MONITOR

The monitor can be entered in several ways.

- 1 After a TRAP interrupt.
- 2 From the nls menu.
- 3 By issuing a monitor command while executing a protocol.

NOTE: Entry after a TRAP interrupt requires an AUTOBAUD.

Upon entry to the monitor, the contents of the registers of the 8085 microprocessor, the 8250 serial interface and the 8273 HDLC protocol controller are displayed as shown below. The status of the "connect" LED (if fitted) is not changed unless the Save command is given.

TRAP REGISTERS

8085 PC = 3748 SP = 43F6 IM = B6 A = 1E F = 54
BC = F000 DE = 8024 HL = 5025
8250 RBR = 00 IER = 09 IR = 01 LCR = 03
LSR = 60 MCR = 07 MSR = 70

8273 Status = 00 Result = F4 RXIR = 05 TXIR = 0D
Commands are Initialise, eXamine, Return,
Dump, Load and Save.

Type the capital letter only.

MON > (this is the monitor prompt)

NOTE: If the 8085's Stack Pointer is outside the normal range when the monitor is entered, the register display will be like the following:

TRAP REGISTERS

8085 PC = 064D SP = 405C *BAD ** IM = 60
A = 60 F = 54 BC = 612E DE = 0949 HL = 601F
8250 RBR = 2C IER = 09 IR = 01 LCR = 03
LSR = 60 MCR = 07 MSR = 70
8273 Status = 00 Result = F4 RXIR = 04 TXIR = 0D
This display is normally only seen if a TRAP is received while in the monitor. Once the monitor prompt (MON >) is seen, the user may then enter a one character command (upper or lower case) from the following list:

- 1 Initialise. The TNC will display Initialise TNC. This is almost equivalent to a RESET (AUTOBAUD will not be required). The initial signon message and protocol menu will then be displayed.
- R Return. The TNC will display Return to interrupted program. If the monitor was entered from the master menu, the initial signon and menu will then be displayed. If the monitor was entered from a protocol ROM (by monitor command or by pressing the TRAP button), control will be passed back to that ROM.
- D Dump. The user may dump (view) parts of memory in Hexadecimal and ASCII. This command requires a hexadecimal memory address to be entered (0000 is assumed if no address is given). Leading zeros are not required. The Line Buffer is from 5000h to 53FFh and the Terminal Buffer is from 6000h to 63FFh.
- L Load. The user may examine and change a series of (RAM) memory locations. This command requires a hexadecimal memory address to be entered (0000 is assumed if no address is given). Load is terminated by typing a ctrl C (control C).
- S Save. This command allows the user to download the contents of the TNC's memory to a host computer for later analysis. It requires a special program to control the save and to capture the data (TNC DUMP) is available for computers running Digital Research's CPM operating system).
- X eXamine. This command will display the contents of the processor registers at the time the monitor was entered for the TRAP button pressed).
- H Help. This is the on-line help facility, which displays a short form list of the X.3 parameters, which can be accessed and viewed without disrupting a connection. Using the Return functions returns you to where you left off.

A TYPICAL SESSION

A typical monitor session is shown below. User input is in *italics*. Comments are in brackets.

(Initial power-on reset — the user types
(AUTOBAUD) unit):

VADCG Terminal Node Controller (initial prompt)
SADCG Master Control Subsystem
January 28, 1985. VK2KFJ

- 1 AX.25 Protocol (protocol menu)
- 2 Vancouver Protocol — V3.

Select a Protocol from the preceding, or press
RETURN to enter Monitor: 1

(select AX25 protocol)

Executing selected Protocol

AX25 LIP 053186 AX25 NIF 053186 AX25 TIP
053186 (signon)

*ae 7 8 (set parameter 7 = 8)
hello last from VK2KFJ (short test message sent over the air)

*mo (command to enter monitor)
(Note the * is the TNC response to an escape key of the terminal)

TRAP REGISTERS (register display)
8085 PC = 2A4C SP = 43F6 IM = 81 A = 48 F = 04
BC = 0002 DE = 4F4D HL = 2A48
8250 RBR = 0D IER = 0D IR = 01 LCR = 03
LSR = 60 MCR = 07 MSR = 70
8273 Status = 00 Result = F4 RXIR = 05 TXIR = 0D

Commands are Initialise, eXamine, Return, Dump,
Load, Save and Help. Type capital letter only.

MON > DUMP 5000 (dump link buffer)

5000:1D FE FF FF 3B 53 13 01 00 88 65 6C 6C 6F
20 74 :5 hello !
5000:74 74 00 66 72 6F 6D 20 56 4B 32 4B 59
0A 00 from VK2KFJ
5020:0A 00 00 00 00 00 00 00 00 00 00 00 00
00 00
5030:00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
5040:00 00 00 00 00 00 00 00 00 00 00 00 00
00 00

MON > LOAD.7000 (load a few bytes into RAM)

7000:00-1
7001:00-2
7002:00-3
7003:00-4
7004:00-5
7005:00-6
7006:00-7
7007:00-8
7008:00-9 (load terminated with ctrl C)

MON > DUMP:7000 (check the load)

7000:01 02 03 04 05 06 07 08 09 00 00 00 00
00 00
7010:00 00 00 00 00 00 00 00 00 00 00 00 00
00 00
7020:00 00 00 00 00 00 00 00 00 00 00 00 00
00 00

(dump stopped by pressing any key)
MON > X (have another look at registers)

TRAP REGISTERS
8085 PC = 2A4C SP = 43F6 IM = 81 A = 48 F = 04
BC = 0002 DE = 4F4D HL = 2A48
8250 RBR = 0D IER = 0D IR = 01 LCR = 03
LSR = 60 MCR = 07 MSR = 70
8273 Status = 00 Result = F4 RXIR = 05 TXIR = 0D

Commands are Initialise, eXamine, Return, Dump,
Load, Save and Help. Type capital letter only

MON > Save TNC memory to host computer.
(save memory to host computer)

Please load and run TNC DUMP on your computer.
Type "X" if this is not possible.
(connect LED flashes while waiting for response
— pressed x, so back to monitor)

MON > Return to interrupted program.
(back to AX25 protocol)

This is not an exhaustive demonstration of the monitor — it is intended as a guide only. This covers the Master Control Subsystem and ends this series on the SADCG AX25-X3 Protocol. Unfortunately, this only covers the terminal interfacing portion of the AX25 protocol, for the Link Interface and Network Interface portions you will have to refer to the AX25 Specification, available from the ARRL. It is hoped this information will be of help to those amateurs developing their own packet radio software and also to those who are just interested.



VHF UHF

— an expanding world

Eric Jamieson VKSLP
1 Quilns Road, Forreston, SA. 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR HANDBEACONS

FREQUENCY	CALL SIGN	LOCATION
50.010	JAGZY	Mie
50.060	NHEDX	Norfolk
50.075	VSSGX	Hong Kong
50.100	JOTYAA	Mizum Ton-shima
52.013	P28PL	Lobos Island
52.020	FKAB	Noumea
52.100	KZSIX	Rue
52.200	VK6VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHF	Hornby
52.320	VK6RTT	Wickham
52.325	VK2RHV	Newcastle
52.345	VK4ABP	Longreach
52.350	VK6RTU	Kalbarrie
52.370	VK7RST	Hobart
52.411	VK0MA	Mawson*
52.420	VK2RSY	Sydney
52.425	VK2BGS	Gumudrah
52.435	VK3SMV	Hemilton
52.440	VK4RTT	Townsville
52.450	VK5VF	Mount Lofy
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.485	VK6RAB	Acce Springs
144.010	VK6RUS	Bussaton
144.000	VK4RTT	Mount Mowbellan
144.010	VK7RCC	Canberra
144.020	VK2RBY	Sydney
144.030	VK6RTU	Gumudrah
144.045	VK6RTW	Albany
144.070	VK7RMC	Launceston
144.080	VK6VF	Darwin
144.085	VK6RAS	Acce Springs
144.050	VK6RBE	Mount Gambier
144.555	VK6RPH	Perth
144.560	VK6RTT	Albany
144.800	VK6VF	Mount Lofy
144.850	VK2RDCW	Sydney
145.000	VK6RPH	Perth
432.057	VK6RBS	Bussaton
432.150	VK6RPH	Perth
432.410	VK6RTT	Sydney
432.420	VK2RBY	Sydney
432.440	VK6RBB	Bussaton
432.445	VK6RUK	Canberra
432.450	VK6RAB	Acce Springs
432.540	VK6RUS	Bussaton
1298.171	VK6RBS	Bussaton
1298.420	VK2RBY	Sydney
1298.480	VK6RPH	Perth
13300.000	VK6RPH	Perth

1 Mark VK0AQ at Mawson, indicates the VK0MA beacon has been running consistently for several months now and the frequency readout has settled on 52.411 MHz and seems to be staying there. Having done some work on the beacon to overcome the dropouts which were occurring, Mark is loath to attempt to bring the frequency down to 52.400, as it may prejudice the present reliable operation as the crystal may prefer to operate where it is at present! The outside temperature at Mawson on May 7 was minus 25 degrees Celsius and getting colder.

QUEENSLAND

A letter from Lyn VK4ALM, in Rockhampton, updates his Six Metre Standings with a confirmation of his contact with VK0SJ. He was somewhat irked by not being able to make contact with Neville and his DXpeditions to ZK2, 5WT and 3D2 despite much monitoring and trying. He could hear the VK2 and ZK2 stations working Nv but no sign of him in Rockhampton. (I can imagine the frustrations, Lyn... SLP).

Lyn also reports the VKJA TEP season has been particularly good so far this year. Openings have been few and far between, although he knows the Alice Springs VK8 Group have had a

good share of contact to JA. The far North Queensland boys have been amongst it as usual. Lyn worked 31 stations in JA spread over 20/3, 28/3, 29/3, 10, 11, 12/4, 23/4, 29/4 and 2/5. Russian television signals have been logged about 25 times, but are generally at low level and short time duration — the late April/May openings usually occur in the 0830 to 0945 UTC time slot. Thanks for writing Lyn.

EME NEWS

Chris VK5MCC, from Hatherleigh, advises the ARRL EME Contest dates for 1987 have been set at October 17, 18, and November 14, 15. As in the past, he is prepared to give a moon printout to any interested people who supply a large SASE.

The first 2304 MHz EME signals were heard at VK5MCC on Sunday 10/5 at 0630. WE2WCB was heard TM copy over a 30 minute period calling ZL2AOE. WE2WCB was the East Coast VHF Society operating from the QTH of K2UYH using a 26 foot dish and 100 watt solid-state amplifier.

Equipment used at VK5MCC is a 20 foot dish with a 3.5 dB noise figure converter using a Ne64535 in a GaAsFET as the low noise amplifier.

The antenna is starting to be very sharp and is showing up some tracking readout error and some mechanical flexing in the wind, so some more work needs to be done before any two-way communication can be considered.

Good to hear from you Chris and that you are well on the way to being on another band for EME. Now that VK2AMW is no longer operational as an EME station, I will have to rely on you and Doug VK3UM for EME happenings in Australia. Good luck.

THE MALAYSIAN REPORT

David Rankin 9V1RH/VK3QV, has written from Malaysia to say that there is a slow development of VHF usage in that part of the world. Two metre repeaters are now operational in Malaysia with one each in Kuala Lumpur, Penang, Singapore, Brunei and Sabah. The last three named have only come into operation during the past 12 months, or so. Apart from the repeater networks there is virtually no other amateur activity on VHF in most of these countries, the only exception being OSCAR working. However, some local amateurs are grasping the idea that "DX" is possible. From time to time Indonesian YC/YD stations 100 km to the south of Singapore will access the Singapore machine whilst well elevated 9V1s (eg 70 metres up a high-rise building) can occasionally access the Kuala Lumpur repeater. There is plenty of room for further development.

USSR VHF/UHF RECORDS

The letter from David Rankin 9V1RH, also enclosed an English translation of a short article which appeared in the Russian Radio magazine No 12 or 1986. It lists the current USSR records for a number of VHF/UHF bands. We wish to acknowledge the translation work done by Dex Anderson VK4KM.

- 144 MHz tropo: UAGIE to DK0TU 26.10.85 3025 km
- 144 MHz aurora: RB5EU to PA1AGJ 9.02.86 2160 km
- 144 MHz meteor scatter UW6MA to GW4COT 12.08.77 3099 km
- 144 MHz ionospheric scatter: UA1ZCL to DK3UZ 27.06.82 2150 km
- 144 MHz EME UA1ZCL to ZL2BGJ 14.10.84 17523 km
- 430 MHz tropo: UA6LGH to OZ2OE 26.10.86 2786 km
- 430 MHz aurora: RA3LE to PA0RDY 8.02.86 1800 km
- 430 MHz EME: UA3LBO to ZL3AAD 3.12.82 18907 km

- 1260 MHz tropo: RB5EU to OK1AXHP 26.10.85 1822 km
- 5850 MHz tropo: UK5ECZ to UK5EFL 6.08.82 1166 km
- 10000 MHz tropo: UK5ECZ to UK5EFL 8.08.82 1166 km

The article goes on to say that beginning in 1980, a table of achievements of Soviet ultra-shortwaves has been published annually, by mode and band, although it played this year due to late receipt of some information.

"Data analysis suggests a relationship between recent achievements and geography. For example, on 26.10.85 several Soviet ultra-shortwaves increased distances on three bands all at once. These are impressive results, but are 500 to 700 km less than European results because the latter were established over ocean or sea rather than continental paths.

"In the course of a single day in February 1986, the farthest communications were established here in our country via 'aurora'. In contrast to 'tropo' the nature of aurora propagation favours ultra-shortwaves on the USSR located at medium latitudes leaning to the hope that Soviet amateurs will better the European records on 144 MHz.

"The results for moon communication are fast approaching the limits. Their improvement depends on the appearance of new EME stations, Soviet as well as foreign, in specific areas.

"It is still too early to speak of 1 mts when it comes to Es communications. Both our own and European achievements result from two-hop propagation, yet three or four hop propagation, though far less probable, is fully possible.

"Our results are noticeably behind the European ones on 5 and 10 GHz. We must hope this situation will change first of all on 5.8 GHz, which, beginning only last year began to be opened up by Soviet amateurs."

It is interesting to read of propagation modes and path distances from other parts of the world as it all helps to keep those presently holding records on their toes and attempting to further their own records as well. Thank you, David.

TWO METRE METEOR SCATTER

Doug VK3UM, has sent me an outline of an article he is preparing for *Amateur Radio* on the very interesting subject of meteor scatter on two metres. A Nations Two Metre Calling Frequency has been chosen on 144.350 MHz bearing in mind this may be more useful for those affected by Channel 5A and also may be left alone by the local ragchewing element.

I will not spoil Doug's article by picking too much out of it but one point which he believes to be very important is that of frequency accuracy within 100 to the degree of being paranoed about it! Time sequencing is probably even more important.

In support of meteor scatter activities, a very brief note from Doug VK3UM mentions a contact with Angus VK4AQC, which was via random meteor scatter on April 20. Five second sequencing is used between 2000 and 2200 by VK3UM to VK4 and Gordon VK2ZAB used 2100 to 2200 to VK4. Despite the paucity of contacts, Doug believes there are quite a few listeners nevertheless.

FROM NEW ZEALAND

Pleased to receive two letters from Paul ZL1TZA. When a letter report on conditions on six and two metres as they appeared in New Zealand during the past six months. Since I do not receive *Break In* now, I have had little to report from that country, but it seems Paul is willing to write from time to time so his offer is gratefully accepted as conditions in their country do not necessarily follow those of Australia. As the first letter covers back to

October 24, 1986 I will only briefly report the earlier period and provide more detail from the latter.

It appears the Es season started in New Zealand on 24/10 at 0944 to VK2 611 to VK3, 4, 5 and FK8EM on 11/11 and again on 18/11. ZK2AZ on 18/11 and ZK2 beacon 28/11 and heard VK6SL calling CQ on 28/11. On 21/12 worked VK6WEA at 0800. Then through to 13/12 with mainly VK1, 2, 3, 4, 5 and 8 being worked with that day conditions were superb. Worked 5W1GA, ZL3, FK8, VK4, 5, 6 and 8 VK beacons being heard from many places. Malaysian television sound heard.

On 14/12 VK2, 3, 4, 5 and 7 VK1, 2, 5 on 18/12, F5SA, 3D2ER, 3D2GR and VK2GG on 20/12. But the best of the season was 21/12 which started at 2012 with FK25FL, VK8Z, X, VK8ZCU, VK4WF, VK4ZGB, VK4KJ, VK8ZMA, VK2FJR, VK2BA. Then two metres opened to VK4LC, VK4KJ, VK2DCC (who was in for an hour), VK2ADY, VK4ZSH, VK2DZV, VK4ZAZ. Also heard VK8 on two metres while working VK2DCC who also heard them and worked them. Then back to 5 x metres to VK1, 2, 3, 4, 5 and 8. Good conditions prevailed through the Christmas period to New Year.

Paul asks where were the Darwin stations this year? None worked at the VK5P establishment either. He also says it appears VK5 and VK6 stations do not Q.S., else the service is very slow (I cannot answer for others, but I have a policy of 6.5 x stations and local television on 50.740 MHz which puts plenty of crud on the band. This take-off rate is rather poor towards VK. He does operate portable from the coastal regions at times and the hps.

In the second letter dated 8/5 Paul says he generally only monitors the bands during the early morning, sometimes at lunchtime and evening and weekends. His catch is not a prime one due to a distant station and local television on 50.740 MHz which puts plenty of crud on the band. This take-off rate is rather poor towards VK. He does operate portable from the coastal regions at times and the hps.

31/187 2P22EF heard at 1010 working ZL2s and VK4 6/1 FK1TK 0930, 6/1 VK2 and 4. 2P22EF at 0720 7/1 VK2, 4 and heard VK0SJ for 45 minutes. 6/1 VK2, 3 and VK0SJ beacon in the morning, then worked ZL3 and 4. 9/11 VK7ZIE VK5LP VK3YDE, 12/1 VK2XJ, ZL3 and 4, 13/1 FK1TK at 0015 all VK2 beacons but no VK2s to work, 14/1 VK4 5 15/1 VK2 beacons again, but no one to work! 16/1 VK4KJ, 17/1 VK3DQJ heard, 18/1 VK7, 3, 19/1 VK4KJ, 20/1 VK5KMW, 3D2ER heard 22/1 VK3ZXP 23/1 VK2XJ, 25/1 VK4KU 26/1 VK4KU, ZL3 and 4. 27/1 VK4KU in for 14 hours. 28/1 VK2 and 6. VK5AYD heard calling CQ. VD VK FM stations audible but no two metre active yet. VK9NS heard working VK5 and 6, but not able to get him in ZL. 29/1 VK2XJ, ZK2 beacon 0615 to 0900.

2/2 ZL3 and 4, 3/2 Worked ZL1QL on two metres who said he was hearing VK two metre beacons and VK Channels 0 stations were affecting his Channel 1. In event 4/2 VK2XJ, 8/2 VK2, 9/2 VK2 and 3, 12/2 VK7F8, 13/2 VK2XJ, 14/2 VK4KJ, VK2 and seven beacons, 15/2 VK2 beacons, 17/2 VK2 beacons, 28/2 VK2XJ 8/3 VK2 beacons 0245 to 0335. 15/3 excellent opening to VK4KJ from 2355 to 0246. VK2RSY, VK2RMV and VK3RMV beacons. 28/3 FK1TK at 1100 11/4 VK2XJ 2351, VK4ABP 2335, VK3RMV 2351 to 0015, also VK3RGG but no stations to work. 12/4 VK2RSY 2310 to 2220, VK8ZLX heard calling CQ at 0305 carrier on 52 427 at 0335 for some time, 14/4 thought heard KH6 at 1215, 18/4 Japanese and Taiwanese trawlers operating near NZ using 51.740 SSB at 2100 19/4 VK2RSY 0020 then worked VK4KU at 0118 29/4 voices heard briefly mentioning about their beam at Argentan Airline aircraft flying over, beam pointing to VK4. Was this aircraft enhancement on 5 x metres?

1/5 VK7RST beacon good copy 1105 to 1115. VK2RSY Sydney beacon also but no contacts.

Whilst the earlier part of this information is somewhat dated I have included it because it indicates the great number of times the band is actually open across the Tasman and seems to indicate that at least for half the year, six metres are open to someone at some time. It would seem, therefore, that more operators should call and not

just listen for someone else to do so. Paul also mentions working into VK5 when the beacon was not audible nor were there any Channel 0 stations heard. He asks if the six metre propagation is frequency and/or location selective. There have been many instances where propagation exists on 50 MHz but not 52 MHz and this proved very irksome to VK stations before they could put any signals on to 50 MHz. During the peak of the last cycle many more stations could have been worked here if we had been able to use 50 MHz. And locations can be selective too. When David VK5KK was at Waseley, it was not unusual for him to work JA stations 10 minutes before I could and for a short period after they left me as the band closed. This is even more pronounced on two metres. Last year, when I was at Menangle, Roger VK5NY was working VK4s 10 minutes before I could. So, you need to live in the right place at times!

SCATTER SIGNALS

Doug VK3UM, sent me a copy of a letter from Ross VK2DVZ, which gives an outline of how those doing scatter work are recording their information. Ross reported hearing VK3UM on the night of 34/8/87 from 1055 to 1103 plus some meteor pings, on 144.350 MHz. The next morning he listened again from 2000 to 2200.

The equipment at the VK2DVZ QTH consists of an IC290H and five element Yagi (inside) with VK5 preamplifier and about 10 metres of RG213, headphones used. In the report, 111111 = six times copied, is fully identified within that minute, 1 trace = heard, but not identified, 1 'K' trace = heard 'K' only.

2117 nil (CZJ aircraft reported at light level 350)

2118 nil

2119 nil (Canberra beacon 5x9)

2220 1 K trace only

2221 2 K traces (EWC reported at flight level 280)

2222 nil

2223 1 trace and 1 K trace

2224 4 K traces pulse 1 complete — very very weak

2225 1111 very weak

2226 2 traces

2227 1 K trace plus 11 very weak (Canberra 5x8)

2228 1 K trace plus 1111 weak

2229 plus 34 secs small ping

2229 111111 — weak (CZJ checked into Melbourne control)

2230 1111 plus 1 K very very weak

2231 1 trace plus 1 K trace

2232 1 K trace plus 111 very weak

2233 111 very weak

2234 VK3UM trace only (EWC left flight level 280)

2235 nil

2236 three K traces and 1 very weak and so it goes on!

A certain amount of dedication is necessary when dealing with such weak signal levels, but it is obvious signals are there a large part of the time and there is some aircraft enhancement from time to time.

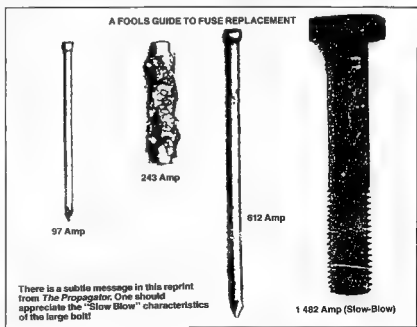
The above read in conjunction with the projected two metre meteor scatter article by Doug VK3UM, may encourage more people to try their hand and skills at scatter contacts.

GENERAL NEWS

I was very sorry to learn that Ray VK3ATN, had his antenna manufacturing factory destroyed in a fire on April 7. Such a disaster would tend to make one wonder if it is worth going on but I expect Ray will continue. Antennas must be a great cause of concern to him when we remember his accident with a large tower being destroyed in a gas while he was on it, resulting in serious personal injuries. We hope all your troubles are now behind you Ray.

I note from the *SEAG Newsletter* that the VK5RSE beacon on 144.550 MHz has had more problems. This time the antenna and chimney on which it was mounted was blown down. Since then, Peter VK5KBF and Trevor VK5NC, erected a tower at the beacon site and reinstated the old dipole antenna from two metres higher than previously. This will have to do until Trevor can come to light with his projected high gain omnidirectional antenna. In the meantime, reports seem to indicate improved coverage from the beacon. Unfortunately, the VK5LP two metre system is still not operational so cannot give a local report.

The Mount Gambier boys are hoping the VK3 gang can give the beacon, VK3RTG, a valve grand and improve its performance. Surely if the beacons are operating properly it should be possible to hear the Melbourne beacon on Mount Gambier at any time if living in a reasonable situation, and the converse should be the case in Melbourne. Before all the damage was done to VK5RSE it was always available here at VK5LP 24 hours a day despite its poor location.



Last month, I congratulated Les VK3ZBJ and David VK3AUU for their wins in the Ross Hull Contest. In addition, I should have congratulated Trevor VK5NC, who came second on an Australian-wide basis for seven day scoring and had the second highest score in the two day section, but, as he received the VK5 State Award, the winning certificate for the two day section went to David VK3AUU. Trevor certainly put a lot of time into the Contest and has reaped his rewards. Peter VK8ZLX also did very well.

VKSLP recently received a Ross Hull Award for the 1985 contest. Apparently the backlog of certificates is being cleared so hopefully all those so entitled will have received their certificates by now.

I came across an item I seem to have missed in a letter from David VK3AUU, on 4/11/86 which reads "I have a rather good time on two metres since putting up a new antenna system on 19/10 so thought I should share the news."

"I now have 19 elements on a 38.5 foot by 40 mm boom at 40 feet on 144 MHz, 33 elements on a 27 foot tapered boom at 54 feet on 432 MHz and nine elements on a 36.5 foot by 50 mm boom at 27 feet on 50 MHz. I have masthead GaAsFETs on the two higher frequencies with about 150 watts to the antenna on 50 and 144, and 50 watts on 432. All the antennas are home built DL6WU designs, with elements mounted through the boom. I have all that lot on a homemade 25 foot high tilt-over tower with a full length of 1.5 inch water pipe at the top. Incidentally, the tower is guied."

"Since the antennas went up I have worked seven separate call areas on two metres by the following means: VK1 by aircraft reflection and tropo, VK2 by aircraft reflection, VK3 and VK4 twice by meteor scatter, VK5 by tropo, VK7 by tropo and WSUN by EME. David's signal was 4 dB above the noise in the 100 Hz bandwidth filter and we exchanged Q reports on CW. I also have a very good tape of Chris VK5MC, off the rising moon on 29/9. We had a very good tropo path between us at the time and I was able to hear both the transmitted and reflected signals with the doppler shift and the two and a half second delay easily audible. I have been running a sched with VK7/G for about two years now each evening at 8 pm on 144 100 and the only time we miss out is when one of us is not on. Since putting up the antennas the Mount Gambier beacon is audible virtually all the time even without the help of aircraft."

I have materials on hand to make four more 144 MHz Yagis for a separate moonbounce array which should have a gain of about 21 dB." (Since the above was written I believe David has completed the four bay array and reaping the benefits of his work. —SLP)

Band activity has been rather low lately. Did hear a VK4 on six metres on 5/5 to be faded out before I could have a contact. I still feel very lost without two metres and hope the position can be corrected before too much longer.

CLOSURE

By the time you read this we will be right in the middle of winter, so bear in mind that a certain amount of Es often appears during this time on six metres. It is little use everyone monitoring without calling — nothing will be heard then! So do make some calls, you may work someone even if no Channel Q stations can be heard.

Two thoughts for the month. Progress is like a wheelbarrow — push, or it stops and a young man never realises that some day he will know as little as his father.

73 The Voice in the Hills



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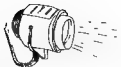
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307 1392



Spotlight on SWLing

Robin Harwood VK7RH
52 Connaught Crescent, West Launceston, Tas.
7250

The telephone rang at 9.45 am one Thursday morning recently. "This is Australian Associated Press in Melbourne. Have you heard any Fijian amateur stations in the last hour or so?"

"Why?" I replied. "Has there been a cyclone or other natural disaster?"

"No, there has been a military coup in Suva. All telephone links have been cut and we are wondering if you have heard any amateur stations coming on with any news."

"Well, I don't think any amateur would be so daring to transmit under those circumstances" I stated and also informed them that there was no external or shortwave outlet of the domestic broadcasting service from Suva.

I was well and truly caught on the hop by this call. The place was all confusion as we were having renovations done to our home. Everything was a little haywire and I was not able to do some serious scanning of Pacific circuits until later in the day. I did monitor the BBC, but found that Radio New Zealand and our own Radio Australia far more informative on what was happening.

Later in the day, another telephone call came from Peter Jones on an FM station in Brisbane. He also requested the frequencies for any Fijian shortwave services. News was scarce and, as cable and phone circuits were congested, it was imperative that any shortwave media outlet be quickly found. Brisbane has many resident people from the South Pacific region and naturally they had been keen to be kept abreast with the latest news.

I was not able to assist him as the shortwave outlets of the Fijian Broadcasting Corporation were closed early in the 70s. The only SW outlet that was consistently heard was Nadi Air Traffic Control on 8.857, 5.643 or 3.467 MHz USB. Ironically, I received a mail request from Bud VK4QY, for those very frequencies that day.

At dead time, the situation is still very confused. Because of the tight censorship imposed on the local media, most Fijians relied on shortwave news broadcasts, especially Radio Australia.

Just a few weeks ago, RA's "Talkback" program repeated Peter Bunn's series on DXing the South Pacific. This is very timely. As you are probably aware, the South Pacific has become very important of late. Many of the Pacific island nations have low powered senders on the tropical broadcasting allocations and we are in a very favourable location to hear them. I highly recommend that those seriously interested in monitoring South Pacific broadcasters obtain copies of Peter's script, which is readily available from "Talkback", Radio Australia, GPO Box 42593, Melbourne, Vic. 3001.

Incidentally, RA has commenced a daily propagation forecast, in co-operation with the IPS Radio and Space Services in Sydney. It is presented six days a week at 0425 UTC, and repeated every four hours until 2025 UTC, by Mike Bird. It contains the solar flux for the previous day and the appropriate sunspot number, together with predictions for the next 24 hours. On Sundays, there is a weekly summary of the weeks conditions in "Talkback", which is almost identical to that on Radio Netherlands "Media Network" on Thursdays. I find this service from RA, indispensable and much easier to digest than the WWV propagation forecasts at 10 minutes past the hour. Often I am unable to hear WWV because of WWVH or JJY or BPM.

Conditions are picking up and 14 MHz is alive with Europeans and Americans again. This is a reliable indicator to me on how propagation is behaving, yet appearances can be deceptive. I am positive that we have turned the corner for as the sunspot number is concerned, but I think it will be a long haul up to the peak we experienced seven to eight years ago.

Those casual shortwave listeners who would like to obtain current schedules from various international stations, but are reluctant to write to the stations individually, may be interested to learn that there is a service in Australia. Known as the "DXer's Schedule Service" it is handled by Howard R Moore and the cost is \$20 per annum. For more information, write to Howard at 33

Brooklyn Avenue, Salisbury, SA. 5108. He is also one of the Australian agents for the respected "International Listening Guide" which is \$25 per annum.

In April, the World Service of the "Christian Science Monitor" commenced operations from Scotts Corner, Maine with a 500 kW sender. As reported in earlier columns, they bought KYOJ on Saipan and plan to link up via satellite with WCSN later in the year. I also am informed that they plan to have a sender in Texas or Florida, to serve South America.

By now, the BBC Hong Kong relay will have commenced testing the transmitters, preparatory to a September start. This will improve audibility to China, Japan and Northern Asia generally. The frequency to watch is 15.280 during our local daytime and the station will probably have identification announcements on test.

It has also been recently confirmed that Swiss Radio International and the Central Broadcasting Network of the People's Republic of China will be commencing sharing transmitting facilities. No date has yet been given, but it is possibly later in the year. SRI recently extended use of the Africa No 1 site in Gabon for their transmissions to Latin America. This makes Africa easy to hear because Radio Japan and Radio France International also utilise their facilities to relay their transmissions.

In conclusion, I would like to thank several people who have been providing me with research and information, especially Bill Perleberg L70043, of "Sunrise Gardens", Ferntree, Tas. Bill has consistently forwarded the latest schedules of some stations. Also, to Don Rhodes VK3MB and Ted Carter VK7EC, for background briefings. Other sources are the Australian Radio DX Club and the Southern Cross DX Club, through their excellent bulletins.

Keep your ears on the South Pacific, as I do not think we have heard the last of this area. In the meantime, good listening and monitoring.

73, Robin VK7RH

MORSEWORD 4

Compiled by Audrey Ryan
Wife of Joe Ryan VK3ABA

ACROSS

1. Stoop
2. To lose strength
3. Disguise
4. Mink is one
5. Employs
6. Nobleman
7. Intertwine
8. Dry with cloth
9. Likeness
10. Hand

DOWN

1. Suffix for killing
2. Second-hand
3. Rhizome
4. Dread
5. Misdemeanor
6. Present
7. Mountain
8. Top
9. Contend
10. Repair

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	1	2	3	4	5	6	7	8	9	10
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Solution page 64



Education Notes

Brenda Edmonds VK3KT
FEDERAL EDUCATION OFFICER
PO Box 883, Frankston, Vic. 3199



Awards

Ken Hall VKSAKH
FEDERAL AWARDS MANAGER
St George's Rectory, Alberton, SA. 5014

AWARDS ISSUED IN APRIL 1987

HEARD ALL VK CALL AREAS
125 Steve Anderson L20440

WORKED ALL VK CALL AREAS
1525 Bob Hyndman ZL7AA
1526 J T Kelleher VK3DP
1527 Karl Diggins DF5KX
1528 Uldino Cavallaro IOJTV
1529 Elvio Pizzo IOZQ
1530 Surace Giovanni I8IGS
1531 Walt de Costa WDSEKR
1532 John E Da uas YB5NOF
1533 Asterios Barbataalos SV1IX
1534 Yoshiaki Chida JA7EAI

DXCC — OPEN
355 Abel Sunalan YB4FNN

DXCC UPDATES IN APRIL			
	PHONE	CW	OPEN
VK2BQS	161		168
VK3VJ	294(1)		
VK4AIX	184	143	204
VK4KS	318(31)		318(39)
VK6AJW	282(2)		
VK8MK	316(43)		316(43)
VK6RF	311(13)	294(24)	312(30)
VK7BC	296(5)	200(6)	304(8)

From time to time I receive information from various sources about community programs or amateur radio activities.

I try to file them so that I can refer to them later but usually find they disappear into the "must do sometime" basket.

One item which has just re-surfaced and which I feel is worthy of some publicity is the leaflet about the "University of the Third Age" at Monash University in VK3.

I quote the introduction to the leaflet:

"The University of the Third Age is a learning community organised by and for people who can best be described as being active in retirement — the so-called 'Third Age' of their lives.

"The overall aim is to satisfy such people's needs for the stimulus of mental activity."

Leading the list of topics planned for 1987 is amateur radio. (There is some advantage in having a course title starting with X)

Rob Carmichael VK3DTR, who has been running a Novice Class for two hours per week since February tells me that the pace is set to suit the students, that some practical activities are included and that final examinations are a regular feature.

There are no fees except the membership of the association which, according to the leaflet, is \$15 for individuals or \$25 for couples at one address. There are no required qualifications except a wish to learn and share knowledge, and no assessments or awards. Students in the Novice course, however, can sit for the DOC examinations if they so desire.

In all the debate about how to attract more qualified participants to our hobby, the attention has been focused on youth. This U3AM course is directed specifically to the more senior recruit

This seems to me to be an admirable idea. Retirees and near retirees have experience, maturity, potential spare time and usually more disposable income than the school leavers or young family person. And amateur radio is an eminently suitable hobby as mobility and ability to travel decline.

I would be very interested to hear of any similar courses in other institutions, and look forward to hearing how Rob's students perform at their examinations.

I have recently had correspondence with candidates in their 70s or older. Let us encourage these new members as much as we can. As I have stated previously, I am always pleased to be informed of classes being run by groups or individuals as I do get queries from potential amateurs seeking help. I would very much like to have lists of members who would be willing to devote a little time to talking to and encouraging students in their localities.

As mentioned in my report to the Federal Convention, the Education Net seems to have died for lack of interest. I feel this is a pity. It seemed a good idea to have a way of sharing problems and bright ideas with the possibility of immediate feedback or action.

In the hope that this will stir up some action I will continue to call each Thursday evening at 1130 UTC, somewhere about 3.680 MHz.

Thank you to all those whose inputs helped to make the discussions at the Convention a little easier. The recommendations regarding the development of examinations have been publicised elsewhere.

Further information will be distributed as available.

75, Brenda VK3KT

INTERNATIONAL TRAVEL HOST

Bill Wells VK4CWB and VK1WB
8 Eacham Avenue, Paradise Lakes, Qld. 4216

The International Travel Host Exchange Scheme involves more than visits!



Bill VK1WB with Colonel "Hogy".



Bill VK1WB with International Host Exchange Visitor, Mariko Ichikawa JP1TVK, from Tokyo, during her visit in January/February this year.

As the VK1 mentioned in paragraph two, page 3 of the May AR, I would like to explain how the scheme involves more than visits.

Since my participation in the scheme in mid-1986 the following events have taken place:

A visit by —
K0BJ and JP1TVK (she stayed for one week)
Exchanged correspondence with —
N6HYK re operating in Sydney via a club station whilst visiting Australia
JP1QZZ visiting Australia via Western Australia
K8ZAUJ planning a visit to Australia
KA9UNL/DJ8DA re immigration to Australia

So far we have not been overloaded in providing transport and accommodation, and I would like to be able to recommend other VK hosts in other areas of Australia to like visitors.

Having visited amateurs in Canada, the United States, and Jamaica I know how helpful it is to have a knowledgeable "local" contact to make the visit flow smoothly.

Colonel "Hogy" is a certain "ice-breaker" with guests but he is very efficient in chopping up cables so has to be well supervised during his walk-arounds in the shack!

The advice guidelines by Ash are excellent, but be diplomatic re costs of meals, petrol, etc — when visiting offer to cover some costs even being a little aggressive, but tactful.

I urge many more VK amateurs to join the scheme. Participation is very rewarding.



Pounding Brass

Q & Z CODE BOOK

If you, like me, occasionally have trouble remembering your Q-Code, there is a new publication available containing all the current Q and Z codes.

The English language, 82 page booklet by PADBFN and PASALM is a handy reference book for every shack, and its intention is to stimulate greater use of the codes. While today's Q-code takes up 36 pages, the original 1912 version is contained on one page. QSB meant *Is my tone bad?* or *Is my spark bad?*; QRG was *What (shipping) line do you belong to?*; QRZ, *Are my signals weak?*; and QSL, *Did you get my receipt?* Many changes have taken place since 1929 and, of course, amateurs have adapted many of the codes for their own use.

The Z-code is hardly known by amateurs today, although there are still some examples in the *RSGB Radio Communication Handbook*. There are 23 categories covering every type of signal, from various aspects of aviation, to meteorology, traffic generally, and 'various.' This last category includes ZUF1, *Air Raid Warning*; ZUF2, *Air Raid In Progress*; and ZUF3, *All Clear*. I hope we will not have to use any of these particular signals, but there are certainly a number of Z-codes which could be revived for amateur use with advantage.

The Q/Z booklet costs three pounds, post paid, just send a bank cheque to Morsum Magnificat, 1 Tash Place, London, N11 1PA.

CONTESTING

My belated thanks to the scores of enthusiasts whom I worked, and all the others who came up on air in the John Moyle Memorial Field Day Contest: to make it so enjoyable. Together with the Commonwealth Contest and the 2L Field Day participants, altogether a lot of numbers swapping around made whichever contest you were in that much more fun. It is certainly a pleasure to hear so many Morse fans and to renew old friendships, however briefly, during a contest. With my average of 7.25 contacts per hour, there was occasionally 1 me for a quick chat. Even though much of the time is spent hunting and punching it is nice to hear so many different 'lets' on the bands. I suspect that a lot of the fun of a contest is meeting some calls on all five bands, sometimes more than once in the same contest. One seems to have a circle of friends met only in contests, and it is great to hear that some of the rag-chewers are enjoying their first taste of contesting. Why not scout around your local club and see if they would like a Morse operator for their next entry? It is much easier, especially for your first time, if there is a group of people doing the setting up. There is usually a roster system so you need not sit at the

rig for the whole time, but can change jobs or even take a nap. A mere hour on the key and I promise you will be hooked.

CALLING KUZUU

Tony Smith G4FAI, says, "Ray Hunting G3OC, has sent me an account he wrote in *Mercury* the journal of RSARS, July 1984, about an experience in France during 1940.

"Ray was sending important traffic back to the UK when the enemy got a fix on his frequency and jammed his signal. The UK operator gave up, and the key was taken over, Ray believes, by the Sergeant-in-Charge, who told him over the air that he was previously KUZUU.

"After that, the two operators abandoned Army procedures and worked as amateurs, using QRG, QKX, QSY, etc, to outwit the interference. At this distance of time, Ray recalls the other operator's call as KUZUU, although he only heard it once through bad QRM. Can anyone help identify this operator, who was obviously a Royal Signals amateur operating in China pre-war?

"Two names have been suggested so far — 'Blanco' White and Frank Lawson. Maybe someone has a 1938/9 *International Call Book* they could look up to see if either of those names, or the call, is to be found there? If you can help, please write to Rev Ray Hunting G3OC, 25 Station Road, Thurbury, Lincs PE10 0JA, England."

WANTED

Does anyone have one or two Curtis 8044 ICs for sale? I have needed one on my three-year-old EA-7B keyer: I am building local Morse enthusiast and now need to build another spare keyer. On the other hand, if none are available locally, I will have to order direct from the USA. So let me know if you want one, and I will see what I can do.

I was reluctant to part with my "first" keyer as it was my first attempt at home-brewing, the kit was no longer available. I had a lot of things to do to collect all the parts. I would have kept it but he pointed out that my new rig had a spare already built-in. Along with my three hand keys, now two, things should be okay until I can build another.

I only hope he takes my advice and does not practice too much on the lamby keyer before he sits his 10 WPM examination using the hand key.

THE SPIRIT OF MORSE, an excerpt from Morse Magnificat

I wonder how many of us are aware that it is still not necessary to regard our old brass hand key as an ancient monument. It seems that modern technology has tried to out the hand key but has not succeeded so far.

We now have electronic keys, automatic keys, keyboards, and computers, that can make perfect Morse, and sometimes receive it too. But, wouldn't it be a pity if we tuned around the bands and only heard this antiseptic machine-CW, with the recognizable characteristics of the personal fist, and unique individual style, lost forever?

We don't want to stop progress, but we think there is room enough in every shack for the things of yesterday, as well as those of tomorrow. It is in the character of the amateur, and the spirit of amateur radio, that we regard with interest, and respect, the achievements of the past while looking, at the same time, to the future.

The key has its part in this process. "When we take the operational end of our hand key between thumb and two fingers, feeling as if they were specially created for signalling, we imagine ourselves in communication with the early pioneers of 'wireless', while we dream with them of technological improvements and progress in the field of communications."

If we, radio amateurs, ever lose this view, we may as well take our licences off the wall, and look around for another hobby.

NEWS

In the May column I mentioned a couple of ideas for a new class of entry license, I do hope you have had a think about it. The Federal Convention, in May, passed a motion to give the two metre band to novice operators. If this goes through, I imagine the novice examination will become harder than ever to pass. Morse enthusiasts are the logical choice if anyone is going to push for a simple CW only class of licence as an entry point for amateurs. Discuss your ideas with your Zone representatives of the WIA, if you wish to be represented, that is!

The advantages, as I see them, are that newcomers will be able to build their own equipment, design their own antennas and generally get on air with a minimum of expense. Those who do not want to build will sit it in the market for all the second-hand home-brew equipment too.

A good grounding in the basics will make it much easier to understand the latest technology when it comes time for them to upgrade to the now difficult novice level. And, a more informed decision made when deciding which equipment to buy when going on to the other bands and modes. For example, if there was a CW only rig, you and me, as 'knights of the key', would save plenty of money. We really do not need speech compressors, USB, LSB, FM and all the extras they involve.

73 and 88, Gil VK3CQ



AMSAT Australia

SATELLITE ACTIVITY FOR THE MONTH OF MARCH 1987

1. LAUNCHES

The following launching announcements have been received:

INTL. NO.	SATELLITE	DATE	AUTHORITY	PERIOD	APG km	PRG km	INCL. deg
— 1987							
0223A	Progress 25	Mar 03	USSR	00.0	272	191	91.9
0224A	Comet 80	Mar 03	USSR	02.7	677	519	82.5
0254A	Comet 8225	Mar 11	USSR	00.3	489	306	72.9
0256A	Comet 8227	Mar 13	USSR	113.6	1480	1283	82.8
0258A	Comet 8228	Mar 13	USSR	113.7	1480	1282	82.8
0259A	Comet 8229	Mar 13	USSR	114.3	1412	1485	82.8
0260A	Comet 8230	Mar 13	USSR	113.9	1480	1485	82.8
0261A	Comet 8231	Mar 13	USSR	113.9	1480	1396	82.8
0262A	Comet 8232	Mar 13	USSR	113.9	1480	1289	82.8
0271A	Comet 8233	Mar 16	USSR	101.9	975	851	71.9
0272A	Raduga 25	Mar 16	USSR				
029A	Pallas 8-2P	Mar 29	USSR				

2. RETURNS

During the period 31 objects declared including the following satellites:

1975-121A	Molnlya 3-15	Mar 07
1986-105E	Oan Target	Mar 02
1987-018A	Comet 1820	Mar 04
1987-018A	Comet 1822	Mar 05

3. NOTES

1987-023A — Progress 25 carried expendable materials and varied cargoes for the orbit station MIR.

1987-029A — Pallas 8-2P was launched by the USA from the Eastern Space and Missile Center for Indonesia. It will provide 24-transponder C-band (64 GHz) communications to Indonesia and nearby countries.

1987-022A — GOES-7 has orbital parameters: period 1382.1 min apogee 38 084 km, perigee 33 363 km, inclination 0.6 degrees.

—Contributed by Bob Arnold VK3ZBS

Electro-Magnetic Compatibility Report



Hans Ruckert VK2AOU
EMC REPORTER

25 Berrille Road, Beverly Hills, NSW 2209

RFI ASSISTANCE LIST IN PRACTICE

We were pleased to find the "RFI Assistance List" in QST February 1978, May 1981 and earlier, as well as in AR March 1982. Of course, no manufacturer or salesman could afford to say that he is not willing to help in RFI collision cases, when his equipment is involved. He may not be aware of the complexity of the job, that perhaps redesigning of the equipment would be required. The difference between the expressed willingness to help and actual effective help lies in the experience, know-how, availability of technical means (if there), and the design features, which may or may not make help by the manufacturer possible. Some have done their homework very well at the design stage, whilst others still have a lot to learn. (See AR November 1988, pps 43-44, EMC Report).

More recently we seem to go backwards in the scope for EMC improvement due to less shielding and earthing, so that even the best added filters often cannot help. If now a manufacturer says to DOC or at a court hearing that he did everything possible and with a reasonable financial effort, this may be a hypocritical statement but might indicate to a non-technical-minded and uninformed judge that the particular amateur must have an especially bad transmitter, and is to be blamed after all. The manufacturer importer or dealer is not likely to admit in court that the technical means to achieve EMC have been neglected or left out of the equipment at the design stage, so that the apparatus cannot meet EMC design standards as they have existed in technically advanced countries for years.

All RF transmitting services should aim at

obtaining a High Court ruling, that DOC licensed fundamental-wave radiation is not responsible for unwanted effects on other equipment. Affected equipment should have been EMC designed according to the state of the art. This has been and can be done economically (see AR, December 1988, EMC Report). If we go on as in recent years with the proliferation of electronic equipment and with little regard for EMC, we may soon reach the point where apparatus A interferes with apparatus B of the same manufacturer and vice versa, if both sets of equipment are operated side by side.

Then perhaps the right thing will be done at last, and the radio amateurs may be permitted to come back on the air unmolested.

TWO CORE MAINS CABLE, AND TWO PLUGS

Old-timers will remember, that 30 years ago or so all locally made electronic equipment (receivers and measuring apparatus) had to have a three core mains cable and a three pin plug, providing an earth connection for the metal chassis and the transformer internal shield. Imported equipment with two core mains cable and two pin plugs was held back by the authorities and only released to the purchaser after modifications — three core cable, three pin plugs — had been carried out to meet the Australian Standards.

My Tandy Hi Fi AM/FM tuner/amplifier, Knesler colour television set, and Sony reel-to-reel tape recorder have three core mains cables and three pin plugs. All were bought several years ago

Some of this equipment has a separate earth terminal as well, a metal chassis and metal chassis bottom cover. These design features help greatly to avoid RFI or to stop what may still get through.

Successfulness of a new JAWA cassette tape deck was reduced by 90 percent after an earth lead was added between the mains earth and the metal case of the recorder, replacing the now missing earth in the old-fashioned way.

Manufacturers of more recent home electronic equipment have found that they can improve their profit by saving one copper lead in the mains cable and one brass pin in the plug. They now point out that modern electronic appliances did away with the metal chassis in many cases. With nothing to earth one needs no earth wire and earth plug-pin. This means, as far as EMC is concerned, that RF and high-pass filter contacts cannot be earthed at the appliance. This makes these devices more or less useless, and RFI is the result. Ferrite-core chokes are often the last hope to improve the RF immunity EMC improvements are therefore, more than in the past, a job for the appliance manufacturer — not for the legally operating radio amateur.

RFI FROM OUTER SPACE

Radio astronomers complain that the signals from stars are often interfered with by the man-made signals from satellites. This causes "black spots" on their maps of the heavens. Is there any EMC solution to this problem?

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INTERNATIONAL WROCLAW SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY

The ninth Wroclaw Symposium and Exhibition on Electromagnetic Compatibility will be held in Wroclaw, Poland, on June 28-30, 1988.

—Contributed by W Moron, Organising Chairman

Electronics Australia

NEW MANAGING EDITOR FOR EA

The Federal Publishing Company recently announced the appointment of Mr Jamieson (Jim) Rowe as Managing Editor of *Electronics Australia*. Jim is well-known to the electronics industry. His former 20-year association with *Electronics Australia* included five years as Technical Editor and nine years as Editor. He returns to head the staff of the magazine after time with Dick Smith Electronics, Microbee and, recently, as a journalist for *Electronics News* and *Broadcast Engineering News*.

As a most respected magazine in its field, *Electronics Australia* looks forward to a strong future under Jim's leadership. With the support of National Advertising Manager, Selwyn Sayers, and backed by Australia's special interest publisher, Jim's appointment will prove a springboard to further growth.

"It's an exciting challenge," he said, "to be involved in building the magazine into an even stronger, even better publication. *Electronics Australia* has a long, respected history, and a responsibility — to both its readers and its advertisers — to be relevant, dynamic and up-to-date. I like to think I can appreciate the past at the same time as looking towards the future, and I'd like to see the magazine reflect this."

Jim took up the appointment on June 18, 1987.



CAROL ELECTRONIC CABLES NOW IN AUSTRALIA

Electronic cable produced by North America's largest cable and wire manufacturer is entering the Australian for the first time.

Multi-Contact Australia Pty Ltd has announced its appointment as exclusive distributor in Australia for Carol Cable Company Inc of USA which, with its affiliates, manufactures about one billion dollars worth of wire and cable every year.

Carol is one of the world's few totally integrated cable manufacturers, rigidly controlling the quality through every step of production from its parent company's copper mine to the finished products. Unlike many competitors these are all manufactured in its own plants.

A director of Multi-Contact Australia, Mr Derek Harris, says that his company will be distributing Carol cables for computer, audio, electronics and instrumentation usage.

"The availability of Carol cable will allow these industries to have a second major American cable supply source for the first time," he said.

Until now Belden has been the dominant overseas supplier in these specialised markets, but manufacturers will now be able to specify Carol cables using a comprehensive Carol-Belden cross-reference listing.



"These cross-references, showing both Carol and Belden product code numbers, are contained on a separate sheet which is inserted into Carol catalogues," Mr Harris said.

Multi-Contact can now supply, ex-stock, two types of Carol Paired Shielded Computer Cables specially designed for use in data transmission, control circuits and signal applications. These cables feature semi-rigid PVC insulation, UL style 1061, CSA Type SR-PVC, conductors cabled in pairs, overall 100 percent Flexfoil aluminium foil/Polyester shield and stranded tinned copper drain wire. The conductor strand is 7/32.

C0601 contains two pairs of conductors whilst C0602 has three pairs of conductors.

The third cable (C1352) is a Shielded Quad Cable with PVC jacket designed for audio, communications and instrumentation use. It has tinned copper conductors, colour-coded polypropylene insulation, each pair shielded with 100 percent Flexfoil aluminium/polyester shield, foil facing outside, #24 stranded tinned copper drain wire and cables paired on common axis to reduce OD. The conductor strand is 7/30.

Catalogues are also now available from Multi-Contact on the specialised cables they are distributing for the Carol Company.

For further information about Carol cable or the new Carol cable catalogue, contact Multi-Contact Australia Pty Ltd, NSW 53-55 Whiting Street, Artarmon, NSW 2064 ph (02) 438 3600
VIC: 10 Nicholson Street, Coburg, Vic. 3058, ph (03) 383 3733
WA: 2/115 Howe Street, Osborne Park, WA. 6017, ph (09) 443 2933.
QLD: 3 Marie Street, Milton, Qld. 4084, ph (07) 344 4444

Intruder Watch



Bill Martin VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

The number of unauthorised transmissions reported for the month of March, 1987, was a little down compared with the same period for 1986. However, the following people are still giving good support to the Intruder Watch, and are making an effort to preserve our band space.

VK2a DEJ, EHQ, PWS, QL, SG, Arthur Bradford; VK4s AKX, BG, BHJ, KHZ, VK5s GZ, TL, VK8RO, VK7RH, VK8s HA and JF.

There were 186 Broadcast Mode (ASB) intruders reported, 152 CW (A1A), 116 RTTY (F1B) other mode intruders totalled 58 and 38 intruders supplied us with their call signs.

"Gib" WJIE, reports that the US amateurs are suffering QRM from Japanese fishing vessels on the 80 metre band, on lower sideband. These are difficult to classify in VK as intruders, as, if they are in International Waters, they cannot be considered to be intruders. And, who knows where they are? Gib also nominates that the slow 'V' beacon on 7002 MHz, a beacon for USSR Maritime use, QTH Vladivostok — interesting.

April 20 last was a pleasant day for me, with a visit from Bob Knowles ZL1BAD, the IARU Monitoring System International Co-ordinator. Bob was formerly the IARU Region 3 M-S Co-ordinator, and had been active in Intruder Watch in NZ for many years. Bob was accompanied by his wife Barbara, and we all had a very pleasant meeting and discussed many things, including, of course, Intruder Watch business. I think we all enjoy eyeball QSOs, particularly with those who we have worked on air frequently, and have never met in person.

So keep those reports coming, and if you have never sent in a report, then please do so, and give all our regular helpers a hand. See you next month. Good DX.

Bill VK2COP

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Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER, ALARA
Box 22, Yeoval, NSW 2268

MEMBERSHIP LIST & DATE OF JOINING as at March 31, 1987

Chapene VK1NEJ 21 February 1982

Kallihave VK2ACP 1 October 1980
Betsy VK2AMU 9 March 1981
Doreen VK2QDB 17 March 1981
Norma VK2QJO 20 August 1975
Beryl VK2QVL 11 August 1979
Joy VK2CEB 25 January 1980
Heather VK2QW 27 October 1976
Marlene VK2KFK 11 November 1983
Joyce VK2MI 5 November 1976
Margaret VK2MV 20 March 1982
Mae VK2NKN 6 August 1981
Nancy VK2NPG 7 November 1985
Margaret VK2PVG 23 March 1981
Bobbie VK2PKS 6 October 1977
Frada VK2QK 26 July 1980
Wendy VK2QKVK 20 March 1985
Jean Darling 23 November 1983

Lorna VK3AGO 6 May 1979
Rae VK3ANJ 20 April 1978
Joan VK3B R 23 August 1975
Mavis VK3BJ 2 August 1978
Jan VK3BBE 1 September 1978
Janet VK3BTU 1 September 1977
Barbara VK3BYK 1 February 1984
Margaret VK3CWA 26 March 1981
Ken VK3DYL 6 November 1985
Margaret VK3DM 8 June 1977
Malcolm VK3DMS 24 October 1977
Vada VK3DVT 25 March 1981
Bron VK3DYV 6 November 1982
Gwen VK3DYV 20 April 1981
Ken VK3HD 20 April 1985
Marlene VK3HQ 3 October 1978
Mavis VK3KJ 22 August 1975
Ken VK3LND 19 October 1981
Bernice VK3PB 11 May 1983
Liz VK3PSG 20 March 1987
Joyce VK3UE 20 October 1978
Janet VK3VAN 12 February 1981
Clara VK3VBK 17 March 1979
Austine VK3VY 5 April 1978
John Theobald 3 August 1975
Irene Fowler 18 November 1985
Muriel May 9 June 1979
Margaret Hamlin 20 July 1986

Chris VK4ABN 14 July 1979
Sandra VK4AC 22 July 1980
Margaret VK4AOE 10 October 1980
Jill VK4ASK 8 October 1984

Connie VK4ATK 1 April 1984
Alma VK4BAE 4 March 1985
Dulcie VK4BDH 6 January 1981
Eleanor VK4BEM 1 May 1985
Betsy VK4BET 24 September 1985
Wendy VK4BSQ 2 March 1982
Anne VK4FAS 12 June 1981
Phyl VK4JFA 12 January 1981
Anne VK4KZX 12 November 1986
Dorothy VK4NAM 21 May 1976
Candy VK4NES 23 December 1985
Valerie VK4NJ 21 August 1979
Mary VK4PZ 9 September 1983
Cecily VK4QD 9 September 1983
Joy VK4VG 27 February 1985
Val VK4VR 7 April 1983

Jenny VK5ANW 21 April 1976
Meg VK5AOV 26 November 1983
Denise VK5BMT 9 April 1986
Joey VK5BYL 20 March 1982
Lorraine VK5LM 30 January 1987
Vicki VK5FL 12 February 1986
Lorraine VK5LM 12 February 1986
Denise VK5YL 20 April 1976
Pauline Koen 24 December 1983
Kil Wardrop 13 March 1986
Christine VK5ZCO 24 May 1986
Bev VK6DE 2 March 1980
Helene VK6H 23 November 1986
Bobbie VK6HM 14 December 1976
Peggy VK6NKL 15 February 1983
Sue VK6NSU 2 October 1980
Debra VK6OJ 9 December 1986
Inge VK6OV 31 March 1985
Margaret VK6OM 21 June 1980
Poppy VK6YF 3 July 1978
Gillian VK6YF 15 September 1978
Christine VK6ZLZ 17 December 1983
Clive Couch 21 October 1977
John Greenaway 24 December 1983
Lynda Francis 13 May 1985

Helene VK7HD 29 December 1977
Grace VK7HNH 9 July 1985
Moira VK7NB 9 April 1986
Kirsti VK7NL 1 June 1980

OVERSEAS MEMBERS

Christie DF1LV 11 December 1982
Christie DF1TE 15 September 1979
Anny DF2SL 15 September 1979
Heidi DF3SL 12 March 1983
Margaret DK5TT 1 November 1981

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Amee FK8FA 22 October 1984
Sheila G3HQO 20 May 1981
Ann G4EY 28 March 1981
Dana G4EZ 19 December 1978
Rae G4JMT 8 March 1984
Cilla G4KVR 1 November 1981
Sylvia G4VBT 28 November 1986
Dee G4VFC 17 December 1984
Angelika G4CCI 25 February 1986

Shirley G4MLUS 20 December 1980
Ann G4MUUX 23 May 1984
Kay G4MKAY 17 December 1984
Fumi J4AEO 21 September 1984
Akio J4IGMZ 6 February 1985
Natsuko J4IVL 8 July 1984
Mazuyo J4BJO 30 January 1984
Etsuko J4BKP 14 January 1985
Jean K1LV 23 March 1981
Karl Wat1UVJ 10 December 1979
Phyllis W2QLB7 23 July 1976
Christine W2BYA 1 June 1978
Jeanne K3ACEO 19 January 1984
Liz W3CDO 1 November 1978
Mary Ann W3HUP 6 October 1981
Ruthanna W3BCN 30 March 1981
W3BDF 19 October 1983
Edith W4SRD 17 October 1979
Barry KASONE 20 November 1986
Mary KESUO 10 February 1986
Carol K5SL 11 May 1983
Darleen W5FQX 16 January 1985

June K8NK 9 June 1979
Joanne K8BY 16 October 1982
Elizabeth K8BNZ 19 November 1986
Mary K8CCL 22 October 1984
Maxine N8GR 28 December 1982
June L8GZ 27 June 1985
Joanne N8FZ 1 August 1985
Jesse W8L2E 17 January 1984

Martha K7CRD 2 March 1982
Doreen K7TE 21 December 1977
Gerry K07RA 19 January 1984
Alice K07SH 26 April 1984
Karl K07YB 11 April 1983
Shirley K07Y 1 October 1983
Marion W4TLL 29 January 1986
Lee K8BRT 2 October 1980

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June K8NK 9 June 1979
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June K8NK 9 June 1979
Shirley W8HEV 16 October 1982
Ann K9ROD 19 November 1986
Ewa O3HST 11 February 1987
Zdena O3ZBI 13 February 1986
Marie-Jeanne O4AYL 1 September 1981
Agnie P3ADR 12 June 1981
Hil P4BHL 12 June 1981
Paula PA0LLA 1 November 1986
Inga PY2JY 23 June 1984
Halle V6CAP 1 October 1980
Elizabeth V6TWL 1 October 1979
Bobby V6CB 28 October 1978
Rae V67CZ 28 May 1978
Margaret V6DKC 7 January 1977
Mik V6TELQ 10 October 1985
Berty V8RYL 26 September 1986
Tut Y00TTK 26 January 1987
John Y8JNW 6 February 1985

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BIRTHDAY ACTIVITY DAY

Happy Birthday once again to ALARA. Our Birthday Activity Day will be held on Saturday, July 25, from 0400 to 1200 UTC. All bands suggested for use as for the ALARA Contest.

We have proposals on w1 per some of our DX members to join us on this occasion.

The ALARA Birthday Net will be held on Monday, July 27, at 1030 UTC. The customary net frequency, 3.580 MHz, 2 ORM.

The VK3 Annual Birthday Luncheon will be held at 1 year on July 26 at the home of Raedie and Olm Ray VK3BHL commencing at 11 30 am. A small reception, tea and coffee available. For further information contact Raedie or Bron VK3DYF.

The VK3 g's will be holding a Birthday Get-together at the home of Meg VK5AOV and Olm David VK5OV on Sunday July 19. Lunch at 12.30 pm (BYO) Interstate and overseas friends welcome. Contact Meg for further details.

ALARA-MEET

A reminder to all who have not yet sent in their registration forms, or booked accommodation for the second ALARA Get-together (ALARA-Meet) to be held on September 26-27 — the time is getting short, so get your forms in, and get your Registration to Maria VK5BMT.

Accommodation can be booked at The Granada Motor Inn Flag Motel, phone (06) 272 8211 mentioning the ALARA Group Booking.

Alternat very try Brownhill Creek Caravan Park, Brownhill Creek Road, Mitcham, SA 5062 Phone (08) 271 4824. Their on-site arrangements are said to be very good.

ALARA AWARD UPDATE

No	Date	Name & Call Sign
125	22 12 86	Jim Bellinger VK3AK
126	14 01 87	Jillie M de Proce VK6AP*
127	18 03 87	Harry Polradtschalski VK3ABD

* Three Endorsement Sockets

ALARA are justly proud of their Award, which must be one of the most beautiful awards offered. The floral emblems of each State of Australia are delicately hand-coloured by Valda VK3DVT, who deserves a very special vote of thanks for the thoroughly professional job she does.

NEW MEMBERS

Welcome to new members Liz VK3PSG, Wendy (wife of Barry VK1BB) and Joanne VK4LCO. Joanne is one of our younger members, 16 years old.

Change of call sign Alma VK3BAE is now VK4BAE. Hope you are enjoying the sunshine, Alma!

VK MEMBERS

Two ALARA members have been elected to the WIA VK6 Divisional Council, namely Gill VK6YL and Christine VK6ZLZ. Christine is Vice-President of the Council. Congratulations to you both.

Maggie VK3CF1, worked the John Moeley Field Day Contest solo from a hill, accompanied by cows, sheep, and two active little harmonics. She used a G5RV antenna, and 10 watts output power. She worked 20 stations in spite of the difficulties. Nice going, Maggie.

Bev VK8DE and Olm Brian VK6AI, using the special event call sign, VK6CUP (America's Cup) logged nearly 200 calls during their rosters time.

June Greenaway LB0088 was the first VK6 SWL to qualify for the award, and her grand-daughter Leeanne the youngest SWL to earn the award. A great family achievement.

Congratulations to Helene VK7HD, who is the recipient of a 75th Anniversary Medallion.

The WARO Club Station, LZ2YL, has been very active during this WARO Silver Jubilee Year. Many people have the attractive Silver Jubilee Award, obtained for WARO contacts during the month of March.

ALARA, the Canadian Ladies Amateur Radio Association, will be 20 years old on 1 September 1987.

JLRS are celebrating the 30th Anniversary this year, and will be holding a convention in Tokyo on July 26 Overseas YLs welcome.

VETPWA

I have received a letter from the Amateur Radio Club "Polonia" VK3CPR regarding the call sign, V3PWA, n operation from October 1, to December 1, 1986, to commemorate the Papi v'sit to Australia.

This special call sign was issued to the "Polonia" Club, formed by Polish born amateurs, and not to Jan VK3DMH, as stated in the ALARA Column, April 1987, AR. (See page 15, November AR, for this special OS).

I would like to apologise to the Amateur Radio Club "Polonia" for any inconvenience caused as a result of this genuine mistake.

Until next month:

73/33, Joy VK2EBX

Club Corner

TUMUT & DISTRICT AMATEUR RADIO CLUB

The Tumut and District Amateur Radio Club meets each Wednesday at 730 pm at the Tumut High School. It is open to all ages and all levels of experience.

Club President is VK2DPZ.

The Club anticipates having its VHF Repeater operational shortly, receive 148.800, transmit 146.200 MHz. Visitors to the area are welcome to call.

—Contributed by Bluff Chapman VK2BYS, Publicity Officer

SUMMERLAND AMATEUR RADIO CLUB

The AGM was held in February and completed a very successful year. Membership increases all the time (currently 69), and, due mainly to a good raft, finances have markedly improved. With the exception of Tom VK2DDG, who has moved to Queensland, the committee remains unchanged. Lance VK2NVF has filled the vacancy Welcome Lance!

It was decided to make 1987 one of much social activity with an outing monthly. The following are typical activities envisaged for the balance of the year.

AMTOR & PACKET DEMONSTRATION

A very pleasant evening was enjoyed by about 17 members. The talk and demonstration was very competently put over by Gordon VK2AGE, who was ably assisted by Harold VK2CHM, with Brian VK2CMC providing the DX link. The packet demonstration went well but RF interference upset the AMTOR. Nevertheless, the lecture went over well. Afterwards the usual ragchew, supper and trades, etc., was enjoyed by all.

JOHN MOYLE CONTEST

A small group of quasi-enthusiastic beings fronted for this event. We beat all previous records and got our score into double figures at last! Apart from contesting and ragchewing, various beings attacked more Channel 8 equipment and reduced it to cashable brass, copper and bits. The weather was kind and a pleasant afternoon was enjoyed by all.

PICNIC AT BYRON BAY

Who says that RF energy doesn't affect the weather? It did the trick on the day. The collective talk power dissipated the damp and the Bay had its best fine day for weeks. Nine members, 15 in all, including family, attended and a good ragchew was had. It was good that two of our associate members were able to make it which enabled the two-way contact to be made. Only two energetic (or weight-watching?) souls, VK2DLR and Liz, stirred up the energy to walk up to the lighthouse. Some others did stray a bit and Blue did some beachcombing or was it bird-watching?

—Contributed by Jim Cunningham VK2BSL, Publicity Officer SAUC

THE WIA URUNGA CONVENTION

The Urunga Radio Convention is the oldest radio convention in Australia. Now in its 39th year it has been held at Easter each year since 1948.

Following are the results of the 1987 Convention.

Saturday

1000 — 40 metre hunt, no winners
1130 — two metre, two transmitter hunt, First Jeff VK2BYY Second Ken VK2DGT
1400 — two metre, two transmitter hunt, First Greg VK2JPR Second Jeff VK2BYY
1430 — 80 metres mobile hunt, First Ken VK2DGT Second Greg VK2JPR

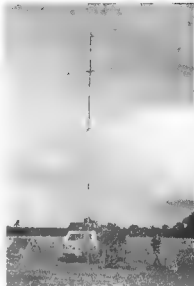
Sunday

1000 — The Urunga Scramble, First Graham VK2ZZV Second Allen VK2EFM
1130 — two metre, three transmitter mobile hunt winner Allen VK2EFM
1430 — two metre Multi-transmitter hunt, First Ken VK2DGT Second Greg VK2JPR
1530 — two metre, three transmitter hunt winner Greg VK2JPR, Runner-up Peter VK2EVB

Other Contests

CW Sending — First Allen VK2EFM, Second Jeff VK2BYY
Non-Technical Quiz — Louis VK2LS
Technical Quiz — Allen VK2EFM
Lucky Door Prizes — Mrs M Smith and Mr D Walker
Raffles
Planet Studio Light — Graham VK2ZZV
Easter Rabbit and Eggs — Peter VK2EVB

RADIOACTIVITY FROM THE NORTHERN CORRIDOR RADIO GROUP



Preparing for the Contest.

Last year, the Northern Corridor Radio Group took part in the John Moyle Memorial Field Day Contest for the first time. Members agreed there was room for improvement.

This year, they sought a location with the potential for plenty of sky-hooks, offered shade, water and easy access to the local tavern. The site chosen was offered by a friendly farmer, located close to Bullsbrook, about 45 km north-east of Perth, near the Pearce RAAF Air Base. It fitted the bill perfectly.

A later reconnaissance party also discovered a refrigerator and shed were available for the group's use, too!

Nicholas VK6NRD (standing) with Alek VK6APK, operating on 80 metres.

A general view of the site with the Delta Loop for 20 metres in the foreground.





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Address:

Postcode:

Bob VK6MQ, operates CW whilst Peter VK6PK, was in charge of AMTOR.

Natural Power Supply From left: Des VK6NWU, Tony VK6ZTL, VK6AHC (seated), Alek VK6APK, Son of Ian VK6ZIC and Ian VK6ZIC.

Antennas were pre-cut and pre-tested by members of the group for most bands. Antennas used were beams for 70 cm, two and six metres, a 2-element delta loop for 20 metres, an end-fed wire for 15 and 40 metres, wire Vee-beam on 80 and a half-wave dipole on 160 metres.

FM, CW, SSB and AMTOR were used at some stage during the contest. VHF stations were operated exclusively on 'natural' power — solar and pedal (ERP = Exhausted Rider Power? !). Some HF contacts were made using these sources also, but the HF transceivers proved to be power-hungry, which necessitated using the generator.

Throughout the 24 hours, approximately 25 group members pedalled, pulled, climbed, struggled and operated their way through the contest, rejuvenated by liberal quantities of OHM cooked food washed down with 807s.

The success of the event was measured by a high level of participation and the enjoyment members derived from the experience.

Although tired at the conclusion, the main topic of conversation was

We will do even better next year!

VK2 Mini-Bulletin

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
Box 1066, Parramatta, NSW 2150

DIVISIONAL COUNCIL

The vacancies on the Council for the year were filled by May and is now up to the full strength of seven. Joining Council were Andy Kerr VK2AAK and Dennis Williams VK2XDW. The other members of Council are Roger Henley VK2ZIG/NWH, M K Burns VK2AJE, Tim Mills VK2ZTM, Peter Jeremy VK2PJ and Dave Horsfall VK2KFU.

President Roger Henley VK2ZIG/NWH
Vice-President Mike Burns VK2AJE
Secretary Tim Mills VK2ZTM
Treasurer Peter Jeremy VK2PJ
Admin. stration Dave Horsfall VK2KFU
Secretary M Lavery
Returning Officer Peter O'Connell VK2EMU

Other Office Bearers for 1987/88. Some rearrangement will be done now that Council is up to strength.
Federal Councillor Jeff Pages VK2BYY
Australia Federal Councillor Tim Mills VK2ZTM
Federal Observers Barry White VK2AAB
Max Smith VK2YKF
Jo Harris VK2KAA

Divisional Historian Cec Bardwell VK2IR
Correspondence Ken Hargreaves VK2AKH
Course Supervisor Vance Roberts VK2CVR
Education Services Co-ordinator Bill Martin VK2COP
Slow Mover Aub Top VK2AXT
Supervisor David Thompson VK2BDT
Intruder Watch Co-ordinator Jeff Pages VK2BYY
Library Off-icer Mike Burns VK2AJE
Assistant Treasurer Dave Horsfall VK2KFU
Property Officer — Parramatta Roger Henley VK2ZIG/NWH
Broadcast and Publications Officer Dennis Williams VK2XDW
Components/JOTA Tim Mills VK2ZTM
NTAC Co-ordinator QSL Bureau L. Alison
Mini-Bulletin Editor
NTAC Co-ordinator

RD CONTEST

At the moment VK4 is the holder of the RD Contest and trophy. The rules for this years event will be in the Contest Notes in this issue so please have a look at them and then set aside some time over the weekend to take part for VK2. While it may almost be the turn of another State to win, it would be nice for the trophy to spend a little time in VK2.

VK2 AWARDS

Currently the Division does not have any awards for working VK2. It has been decided to introduce a range of Awards for contacts made on and after the beginning of 1988. The awards are based on those being successfully conducted by other States. The major one will be a VK2 — 1988 — AWARD. It will require the working of 200 contacts in a single or mixed combination of modes. After next year the award will continue as a VK2 award. It is based on the VK1 award.

The next award to be introduced is a *Worked All New South Wales*. It is based on the VK4 Shires Award. The third major award being introduced is based on the VK3 National Parks Award. Greater detail will be given in these notes in a month or two. Some of the design work still has to be done for the certificates so Divisional Council would like to hear from anyone able to assist in this regard.

Some other special awards will be considered for activities during the 1988 year. There are many Shires and National Parks where there is little or no resident amateur activity. This will be a chance for both clubs and individual amateurs to establish stations for a weekend, or similar, to activate the

810s WANTED

VK2WI operates three AWA J54-800 AM transmitters in the main HF broadcast network. (See report in May AR). The final and modulator valves are 810 triodes but our stocks are getting low. Does anyone have any which are no longer required? If so, we would like to hear from you so that arrangements can be made to obtain them.

Either write to the Dural Committee, PO Box 1066, Parramatta, NSW 2150, phone (02) 689 2417, 11 am to 2 pm Monday to Friday or 7 to 9 pm Wednesday, or call VK2WI during the call-backs.

WICEN

The new repeater unit for VK2RWS 7150 went into service from Chatswood on May 14, last. It is now a duplexed system, about eight watts to a three dB gain antenna.

A reminder of coming exercises — Sun City to Surf on Sunday morning, August 9. Possible car rally at Batemans Bay, September 26-27. Canoe Classic on the Hawkesbury River, Saturday afternoon and Sunday morning, October 10-11.

ANNUARY QUIZ

The top places were close. The first place went to Arthur Twomey VK2KAT. Runners-up were Jo Harris VK2KAA, Jim Swan VK2BQS and Peter Ritchie VK2HC. Thanks to all who took part, I hope some new knowledge was gained. A small group attended Dural on May 17, to celebrate the day. The fireworks evening had to be rescheduled to late May due to difficulties in obtaining a permit on the original planned date.

ATV IN SYDNEY

Regular ATV activities are being provided in the Sydney by the Gladesville ARC. They have a transmission every Wednesday evening beginning at 7.30 pm on UHF, slightly higher than channel 35, from Lane Cove West. A recording is made and replayed at 7.00 pm on Friday evening. Video tapes of some of the class instructions are put to all. These tapes are also available for borrowing. The Gladesville ARC may be contacted via their Post Box 48, Gladesville, NSW 2111, or phone (02) 422 0530.

The Sydney ATV Group has had to leave the site of their ATV repeater and, at the time these notes were being prepared, had not established a new site.

NEW MEMBERS

We would like to welcome the following to membership of the WIA. They were in the May intake.

L A Brill Assoc Gannam
N Cohen VK2OP North Bondi
N B Cupitt Assoc Seven Hills
W J Elphick VK2DRI Wolumba
F C Mollison Assoc St Marys
R G Pelham VK2XDX Griffith
VK2XDX Griffith
S D Smith VK2MAG St Ives
J H Sutherland VK2BJO Camden
J Thomas VK2ZAJ Greystanes
W P Truscott VK2EVI Wahroonga
H S Virik VK2MJH West Killara
L Wood VK2MBH Bermagui

SUB-COMMITTEE ANNUAL ACCOUNTS

Reproduced below are the Education Service and WICEN Sub-Committee Accounts for the year ending December 31, 1986.

WIRELESS INSTITUTE OF AUSTRALIA AUDITORS REPORT

In accordance with Section 295(3) of the Companies (New South Wales) Code we hereby state that in our opinion the accompanying accounts are properly drawn up:

1) So as to give a true and fair view of the matters required by Section 295, to be dealt with in the accounts.
2) In accordance with the provisions of the Companies (New South Wales) Code.

3) In accordance with applicable approved accounting standards.

4) The accounting records and other records and registers required by that Code to be kept by the company have been properly kept in accordance with the provisions of that Code.

Signed at Parramatta
this 26th Day of February 1987
GIBSON PEARCE & CO
Chartered Accountants

WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION EDUCATION SERVICE TRADING STATEMENT FOR THE YEAR ENDED 31ST DECEMBER 1986

	THIS YEAR \$	LAST YEAR \$
INCOME		
Sales	12 220	13 803
TOTAL SALES	12 220	13 803
LESS: COST OF SALES		
Opening Stock	13 39	10 805
Purchases	3 812	9 719
Closing Stock	11 213	13 339
	5 728	5 184
	84 462	84 019
GROSS PROFIT FROM TRADING	5 482	5 018

WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION EDUCATION SERVICE INCOME & EXPENDITURE STATEMENT FOR THE YEAR ENDED 31ST DECEMBER 1986

	THIS YEAR \$	LAST YEAR \$
GROSS PROFIT FROM TRADING	5 482	5 018
ADD OTHER INCOME		
Interest Received	2 605	2 018
Use of Equipment	40	2 643
Donations	0	2 643
	2 615	10 682
TOTAL INCOME	8 098	15 700
LESS: EXPENSES		
Advertising	2 440	2 408
Audit Fees	300	300
Bad Debts Written Off	0	5
Bank Charges	274	270
Depreciation	219	219
Use of Packet Expense for Service Members	663	821
Post Office Box Rental	1 403	1 671
Postage	254	33
Printing and Stationery	150	130
Repairs and Maintenance	0	130
Freed Assets Scraped	0	130
	6 165	5 077
NET PROFIT	1 933	1 062
Retained Profits — Beginning of Year	40 219	48 142
ACCUMULATED ITEMS	45 151	59 219
Less: EXTRAORDINARY ITEMS	0	10 000
Special Transfer to WIA — NSW	0	10 000
ACCUMULATED FUNDS 31ST DECEMBER 1986	\$43 151	\$40 219

WIRELESS INSTITUTE OF AUSTRALIA NEW SOUTH WALES DIVISION EDUCATION SERVICE BALANCE SHEET as at 31ST DECEMBER 1986

	THIS YEAR \$	LAST YEAR \$
ACCUMULATED FUNDS 31ST DECEMBER 1986	\$43 151	\$40 219
ACCUMULATED REVENUE	\$43 151	\$40 219
RESERVES	\$43 151	\$40 219
Represented by:		
CURRENT ASSETS		
Cash at Hand	28 989	23 487
Cash on Hand	444	310
Trade Debtors	11 213	13 139
Stock on Hand	40 729	37 168
	40 729	37 168
FIXED ASSETS		
Hire Equipment	960	960
Less: Provision for Depreciation	450	384
	480	576
Office Machinery & Equipment	4 684	4 684
Less: Provision for Depreciation	2 262	2 262
	1 942	2 422
NET ASSETS	\$43 151	\$40 219

Dear Sir,
I have completed an audit on the WICEN accounts as presented to me for the year ended December 31, 1986. I have found the books to have been kept in a correct manner and consider that they are adequate. I am satisfied that the Trading Account and Balance Sheet show accurately the financial position of WICEN.
A copy of the accounts follows.
Yours faithfully,
D S Thompson VK2BOT



VK4 WIA Notes

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld 4001

WIRELESS INSTITUTE CIVIL EMERGENCY NETWORK TRADING ACCOUNT FOR YEAR ENDING DECEMBER 31, 1986

SALES			135.35
Less Purchases			
Opening Stock	1470.36		
		1470.36	
Less Closing Stock		1341.38	
Trading Profit for Year			129.00
			6.25
Profit/Loss Account for the Year Ending December 31, 1986			
INCOME			
Trading Profit		6.25	
Subscription (88)		342.95	
Grants		1750.00	
Interest		355.71	
Donations		1200.00	

Less Expenses			
Bank & Gov Charges		8.02	
Licenses		23.00	
Postage/Stationery		84.53	
Promotion & Printing		85.38	
Travel/Entertainment		644.00	
VIA Expenses		80.00	
Repairs & Maintenance		23.80	
Add Depreciation Woll		225.12	

Surplus for Year		654.17	
		2989.79	
BALANCE SHEET AS AT DECEMBER 31, 1986			
ACCUMULATED FUNDS			
Balance brought forward 1.1.86		8155.18	
Add Surplus for Year	5	2989.79	
		11145.97	

REPRESENTED BY			
Cash at Bank		2660.72	
Stock on Hand		5341.38	
Fixed Assets at Written Down Value			
Repeater	1080.76		
Transceivers	988.73		
Generators	534.79		
Sundry Equipment	352.60		
Radio Equipment	442.19		
Public Equipment	3541.80		

Less Subscriptions Paid in Advance	5	11145.97	
------------------------------------	---	----------	--

Signed D S Thompson
Auditor 1.3.87

At the time of writing these notes the VK4 Division is somewhat in the dark as to our participation in Expo 88. This event will take place in 1988 from April to October, in Brisbane. The site of some 40 hectares is already in preparation and is nearing completion.

Negotiations were started with the Expo Authority in 1984 and, after repeated representations by our Secretary, Theo Marks VK4MU, an interview was finally arranged with Sir Lew Edwards. Sir Lew heads the Authority. A very professional illustrated portfolio was prepared, setting out the potential of amateur radio to Expo and this paved the way to a very encouraging meeting between Sir Lew Edwards on one hand and Theo Marks and John Aarsse VK4QA, on the other.

Sir Lew has promised to recommend to his committee that the Wireless Institute be given several thousand dollars worth of space and assistance with QSL cards. These should be forthcoming soon, as publicity for Expo around the world. Word is expected to confirm this before this issue is available.

The task facing the Division is nothing less than enormous. Setting up the exhibit is, relatively, the simple part. Putting a station on the air from the site with a special call sign, VK4XPO (maybe?), will not present any insurmountable problems. The frightening problem is people. Something like four to six people, every day, 10 hours per day for 184 days, are we equal to the task?

Bud VK4QY
BT

VK3 WIA Notes

Photo by Robert

NEW MEMBERS

The following applications were received for the month of April 1987, and accepted by Council on April 23, 1987. A warm welcome is extended to:

Geoffrey Agar VK3BGT, John Boyce VK3AXF, John Buxton VK3CXM, John Hawkins VK3ZLL, Roy Jones VK3CJR, David McFarlane, Paul Sharn VK3KPC, Dale Smalley VK3KLN, Trevor Stenn VK3HKG, R K W Steadman VK3XRS, David Webster, and Henry Yong.

Magazine Review

Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic 3087

G General
C Constructional
P Practical without detailed constructional information
T Theoretical
N Of particular interest to the novice
X Computer program

HAM RADIO — February 1987. Propagation Predictions (X) Diodes — Types and Characteristics (G N) UHF Amplifiers (C)

WORLD RADIO — March 1987. News of Amateur Activities, Marine Mobile, DX Reports, etc (G)

BREAK IN — April 1987. New Soldering Techniques (P N) 1986 SSB Contest Results (G)

CQ-TV No 137 — February 1987. News, Information and Circuits for ATV, SSTV, etc (G)

IAN J TRUSCOTT

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- AMATEUR REF BOOKS (RSGB & ARRL HANDBOOKS), VHF MANUALS, ANTENNA MANUALS & MOTOROLA NATIONAL DATA BOOKS
- FULL RANGE 27 MHZ & 477 MHZ CB RADIO & ACCESSORIES
- UNIDEN SCANNING RECEIVERS
- COMPUTERS
- WELZ TP-25A 50-500 MHz DUMMY LOAD — POWER METER



Five-Eighth Wave



Jennifer Warrington VKSANW
59 Albert Street, Clarence Gardens, SA 5039

April is always a busy month in this Division and this year proved no exception.

The Clubs' Convention, which was held on the weekend of April 25-26, was well attended with the following clubs represented:

Lower Eyre Peninsula, South East Radio Group, Alice Springs, Lower Murray, Adelaide Hills, South Coast, Elizabeth, Port Adelaide, 2nd Adelaide Scouts, SA ATV Group, ACBRD, and, for the first time, Barossa ARC. Our afternoon speakers this year were even briefer and more informal than previously, if that is possible. Mitch VK5AZM, discussed the Mount Lofty 70 cm repeater, John VK5SJ spoke about the National Old Timers Club, and Rick VK5KRX, gave a demonstration of audio and sub-audio tone access. It was probably just as well that they were brief as we ran out of discussion time on the Sunday as it was.

Despite our fears to the contrary, we managed to get enough ladies to help with the catering, although one or two more would have made life even easier. Jill Wardrop did an excellent job as our only full time helper, but she was joined at various times by Lorraine Maddern, Joy VK5YJ, and Jann Westerman. We thanked the ladies with a small gift each, but Gill has also asked me to thank those people who did help at various times with washing up, floor sweeping, etc., all of which was greatly appreciated.

Our speaker on Saturday evening was Graham Holm-Smith VK5AQZ who showed a video of the many activities which took place during our Jubilee year and spoke a bit about the year in retrospect. We thanked Graham by presenting him with a Jubilee Mug and a brass key ring which read "Expensive, but worth it!" a sentiment which I felt summed up our feelings. Actually, I had to admit to Graham that he had proved us all wrong, and, despite our fears to the contrary at various times last year, the Jubilee Activities had not only come out "in the black" but were showing a healthy profit! I would like to thank all those people mentioned, plus the members of Council and anyone else who did anything to make it successful once again.

The following Tuesday night saw us not only holding our AGM, but also celebrating the 10th Anniversary of the Official Opening of the Burley Griffin Building as our Headquarters.

At the Annual General Meeting the following were elected to Council for the next two years — the positions have been decided since:

Jenny Warrington VKSANW	President
Don McDonald VK5ADD	Secretary/Vice-President/Alternate Federal Councillor
Hans Van Der Zalm VK5KHZ	Clubs and Country Member
Alan Melbourne VK5NNM	Representative Education Officer and Assistant Membership Secretary
We join Bill Wardrop VK5AWM	Treasurer & WICEN Director
Karl Westerman VK5AGW	Membership Secretary
Rowland Bruce VK5OU	Federal Councillor & Vice-President
Dick Boxall VK5ARZ	Immediate Past President
Bob Allan VK5BJA	Public Relations/DOC Liaison/SATAC Co-ordinator
Peter Maddern VK5PRM	Minutes Secretary

I hope that Hans and Alan will enjoy their time on Council and find it a worthwhile experience.

At the special part of the evening, to celebrate our 10th Anniversary of the opening of the building, an edited version of the video of the original opening ceremony was shown by John



Jenny VKSANW cuts the cake at the celebrations to mark the 10th Anniversary of the Opening of the Burley Griffin Building (Headquarters of the VK5 Division). Joy VK5YJ (left of Jenny) organised the cake.

Ingham VK5KG, and I would like to thank John for taking the time to edit it and also arranging the large-screen monitor on which it was shown. Many of our invited guests were unfortunately not able to be with us due to illness of one sort or another, but amongst those we were able to welcome back were:

Geoff Taylor VK5TV, Bob Murphy VK5MM, Gerry Preston VK5PI, Keith De Kock, and Ian Hunt VK5OX.

The showing of the video was followed by a special supper and I would like to thank Jill Wardrop, Lorraine Maddern and Joy VK5YJ once again for their invaluable assistance. Joy also organised a delicious Birthday Cake with 10 candles, which were blown out, and the cake cut, all with due ceremony.



Steve VK5AIM and bride Sue, cut the cake.

I may not have been an official function, but I was very pleased to be present, on Saturday May 2, at the wedding of Steve Mahony VK5AIM (our Disposals Officer and sometime Auctioneer), and the former Sue Coccetti, Tony Chapman VK5JJ was the Bestman, Steve's daughter, Pam, was the Bridesmaid, and there were five or six amateurs amongst the guests, so perhaps it was not surprising when, after the Ceremony, a Guard of



Steve VK5AIM and bride Sue sign the Marriage Certificate watched by Steve's daughter Pam (Bridesmaid) and Tony VK5JJ (Bestman).



Bestman, Tony VK5JJ (left) and recently retired DOC State Manager, Rob VK5RG, provide a glass of honour at the wedding of VK5 Disposals Officer, Steve VK5AIM and his bride Sue, in May.

Honour was formed by Rob Gurr VK5RG and Tony holding "Crossed Yag's".

We wish Steve and Sue all the best for the future together.

AUGUST MEETING

We hope to have a very special speaker from overseas for our August meeting — keep listening (and watching) for more information. In the meantime, ensure you keep August 25 free.

MORE JUBILEE 150 AWARDS

1384	VK5BF 1st Marshall Island
1385	G4BNB
1386	VK6AEM
1387	VK6KE
1388	ZF1RC 1st Grand Cayman
1389	Y0CBMU
1390	YC7ZAC
1391	Y0CMED
1392	ZL1AXV

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher

MUCH APPRECIATED

We are pleased to note that the excellent standard of *Amateur Radio* magazine has been maintained over the years and urge all involved to keep up the good work as it is very much appreciated.

Thank you,

The Urunga Radio Convention Committee
PO Box 433,
Coffs Harbour, NSW, 2450.

OF GENERAL INTEREST

Following is a copy of a letter from the Department of Communications, Canberra, received by me.

I believe this letter should be published in the interests of amateur radio.

73,

Ken Richards VK3CKK,
2/15 Neilson Street,
Bayswater, Vic. 3153.

Dear Mr Richards

I refer to your letter seeking reconsideration of the conditions recently advised in relation to soliciting by amateurs for Third Party Traffic (TPT).

Decisions taken in connection with the amateur radio service cannot be made in isolation from the demands of other radiocommunications users and private network operators in general. To allow amateurs to solicit to carry TPT, except in emergency circumstances, could set a precedent for soliciting by other radiocommunications users. I must therefore re-affirm the Department's previous advice that amateur operators can only solicit for messages as an aid to providing TPT communications in a declared emergency situation or natural disaster.

You may be assured that the Department is very conscious of the valuable contribution made by dedicated amateurs in times of emergency. This restriction on soliciting however, does not detract from the ability of the Amateur Service to carry TPT messages and I believe is in the best interests of the amateur fraternity when the primary purpose of the amateur service is taken into account.

Your sincerely,

Signed, D HUNT,
Manager Regulatory,
Operations Branch,
Radio Frequency Management Division
Canberra,
April 28, 1987.

GOOD CUSTOMER RELATIONS

Over the years there have been several letters to the Editor *Over to You* published which state some of the advertisers in *Amateur Radio* and elsewhere for some shabby practices. It is more often dissatisfied customers who write letters of complaint and issue warnings to others where people are less inclined to write letters of a complimentary nature.

I wish to relate one such excellent customer relations exercise which occurred recently. In July 1983, on a very rushed business trip to Sydney, I visited "Emtronics" with the intention of purchasing a CW filter for an FT101. At that time, unfortunately, I didn't have with me the technical information (eg frequency, etc), so had to rely on the company's advice that the filter was okay. On returning to the filter after checking the manual, I discovered that the filter was for the FT101Z and not for the FT101.

As I travel to Sydney from time to time, I decided to return the filter on the next visit however, the opportunity didn't again arise until April 1987.

A lapse of some four years had occurred and I was unable to locate the original receipt. The situation was explained to the Emtronics staff. The filter was gladly accepted back and exchanged for another electronic item for the shack.

Over to You!

As the gap of some four years had occurred since the original purchase I had expected and would have accepted a point blank refusal, especially as I had lost the original proof of purchase.

To me this is what good customer relationship is all about, a more than satisfied customer. I must without qualification give them a well earned 10 out of 10.

Thank you Emtronics.

Yours faithfully,

David A R Rossan ZL1AFQ,
PO Box 65-147,
Mairangi Bay,
Auckland 10, New Zealand.

THE FUN OF DIXING

Dixing is like deep sea fishing, you never know what will come up next.

I recollect a J-station who did not want a GSL card. Another USA amateur who claimed an antenna on a hill 700 feet (213 metres) high using coaxial cable 600 feet (182 metres) long. He apparently lived in a valley and had a fairly good signal.

On another occasion I had a QSO with three J7-stations, worked on three different frequencies on 15 metres at different times in the morning and the same town, surely a coincidence. An amateur in Israel was using a tower 150 feet (45 metres) tall and had a good signal.

Finally, there was the amateur in Florida whom I QSOed on 15 metres and after a long contact he began to drop-out. He made some remarks about the wife which I queried twice, still couldn't understand, so gave him my 73 and commenced a contact with a fellow amateur on a two-metre shed.

My wife called out to say I was wanted on the phone. I said to tell him to hold on, but she called out that it was America so I rapidly went to the phone. It was the amateur from Florida to explain what he had said about the wife, not to send a card as he would write and went off after sending his best. What next!

Lately, 20 metres has been kind to us. I would beseech those keen VKs when calling CQ to first check the frequency in use before engaging in long calls and interrupting others working on the band. Please do not spoil the fun!

Regards to all.

J Brinkman VK2TS,
61 Gundagai Street,
Coffs Harbour, NSW, 2450.

OLD PIECE OF GEAR

This sketch is of an old piece of old gear that I have recently bought, which may be of interest to others. It is a variable inductor, beautifully made of moulded bakelite. It came in the original box with mounting instructions and had not been used. I thought about using it for an antenna tuner of some sort for receiving only. I have an FRG7 receiver, but the pre-select does nothing for 0-500 kHz reception as the receiver was not designed for reception below 500 kHz, although many beacons can be heard "down" there.

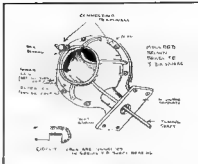
Whilst experimenting with the old variometer and connecting it in series with my wire antenna, I was surprised to hear the beacons below 500 kHz become much louder and, with better selectivity when the inductor was tuned. I was very impressed that an old piece of radio gear could make such a difference to a modern set.

Yours sincerely,

Dave Mann VK3DBJ,
94-96 Felix Crescent,
Ringwood, Vic. 3134.

NOVICES ON TWO-METRE

I am of the opinion that nobody should be given



Sketch of a Radio Variometer.

The year of manufacture is unknown, however it was made by Gilfilian Bros Inc, Los Angeles, New York and Kansas City.

any privileges without passing the appropriate examinations.

Would you not agree that when someone has done his or her study and passes the exams that the chances are that they will appreciate the privileges much more and by doing so creating better amateurs at the same time.

Where is all this going to end?

The next thing to happen is Limited Operators asking for the whole 40-metre band.

Of course I would be against that too.

The qualifications to become an amateur has to be kept up at all times. There is no way you can force anyone to obtain his or her licence. One has to be interested in the hobby otherwise the "quality" of operators will suffer.

G Elizan VK2XMM,
9/22 Putland Street,
St Marys, NSW, 2750.

SINCERE THANKS

The *Traveler's Net* can be heard on 14.106 MHz daily at 0300 UTC, and having been using it to keep in touch with VK3B1, I can recommend it to anyone traveling.

I would like to thank VK3s KV, PN, YK, UX, VK5s FV, ARM, VK6s BO, YE and, last but not least, ART. I am sure that anyone travelling could receive news from home if messages were left in Melbourne with Arth VK3UX, Adelaide Richard VK5ARM, and Perth Arth VK5ART.

C James Pope VK3DPO,
23 Ayr Street,
Doncaster, Vic. 3108.

IT'S A SHAM!

I have taken *Amateur Radio* for several years and I have enjoyed it greatly. I very often quote from it when selecting material for our *Amateur Radio News Service Bulletin*. It is excellent.

On page 54 of the January 1987 issue, there is an article relative to the origin of the word "Ham". We have been trying for several years to halt this information because it is a pure sham!

The ARRL, many years ago investigated this story. No record has ever been found of such a meeting in the records at the capital. Further, the ARRL found that the word "Ham" had been used for an amateur radio operator many years previous to 1911 when this meeting is supposed to have been held.

I would suggest that, if you wish, contact the ARRL who will corroborate the above.

Sometimes a sham goes all over the world once it gets started! How about sending those cards to

the fellow in Great Britain? He was inundated with cards, but it turned out to be a pure sham!

Probably 40 years ago I wrote an article "Beware of a radio amateur for he is a strange being possessed of many devils" as the start. A YL/YF organisation in South Africa reprinted it but gave no source. It was reprinted all over the world with credit given to me, not me!

Oh, well! Keep up the good work, you are doing excellently.

73,

**Amateur Radio News Service,
Ralph V (Andy) Anderson K9HL,
Editor,
525 Montana Avenue,
Holtan, Kansas 66436, USA.**

HF BEACONS

Most amateurs by now will be familiar with the beacons on 14.100 MHz, using a single frequency time sharing system. Also, most would know of the 28 MHz beacons and the proposal to group them into 28.190 to 28.199, with a world-wide time sharing network on 28.200 MHz.

However, how many are aware of the expansion of the International Band Plan on 21 MHz? This is to be undertaken after consideration by the HF Working Group of Region 1 (Europe) and the nominated frequency is 21.150 MHz. So, be warned now, you could be asked to QSY because you are on or near a beacon frequency. I have not seen any comment from our Region 3 organisation on this subject.

**Nell Penfold VK8NE,
2 Moss Court,
Kingsley, WA. 6026.**

NON-RENEWAL OF WIA MEMBERSHIP

I am very concerned about the lenor of your editorial in the May 1987 issue of AR. My impression is that you do not believe the 1000 individuals who do not renew their WIA membership for 1987 when they say "the cost was more than I can afford".

I also suggest that there is an insignificant minority of the 1000 who do not wish the WIA to represent our amateur radio interests. In fact, I believe that the high cost of membership is now a valid reason for non-renewal.

We all know that our general living expenses are now in the lead at a greater rate than our incomes, whether we are pensioners or wage and salary earners and it is becoming harder to manage family and personal budgets.

This is not the forum to discuss the reasons for this change in fortune but, suffice to say, I now believe that the cost of WIA membership is too high for some individuals.

In such financial circumstances, we all have to make priority decisions on where we can spend our cash. The first to go are the non-essential expenditures and, no doubt, some of our previous WIA members have, of financial necessity, decided not to renew their membership.

In my own case, I have deferred or abandoned some projects/activities in my amateur shack because there are now other priorities for which I must allocate my spare or "hobby" cash. I have deferred my intended experiments in packet radio because I am loathe to spend the \$300 plus at the time for the hardware and software required to get going on packet radio. However, I hope I can proceed with these experiments prior to the end of 1987. It is quite possible that by the end of 1987, my WIA membership renewal may be included in my "non-essential" expenditure which may be cut from my 1988 budget!

Therefore, I think it is time for FE to make some hard decisions to minimise further loss of members, and avoid the inevitable financial collapse for which there are clear warning signs.

My first suggestion is to cease publishing *Amateur Radio*. We could replace this with a two or three page bulletin sent to members, say each quarter. This would be produced in the WIA Federal Office and contain all necessary policy items, important extracts from FE minutes of meetings and correspondence with DCG etc. This would result in a dramatic reduction in the annual membership fee. This is a very painful suggestion, but it is clear that the excellent AR magazine is no

longer financially viable, in spite of the large voluntary effort that goes into its production and distribution.

The second suggestion is even more important. The WIA should immediately cease negotiations with DCG to take over responsibilities for conducting amateur certificate examinations. This is not and never has been a function that should be taken over by a non-Government organisation such as the WIA.

Under the ITU Conventions which Australia has signed, DCG has been charged, inter alia, with the responsibility of licensing amateur radio operators and looking after their interests. It is clear that DCG is seeking to abdicate that developed its responsibility to conduct amateur radio examinations, for which it charges a fee for service anyway. If DCG succeeds in unloading this function, I would expect some compensating reduction in my annual amateur licence fee of \$26. If there is no reduction, I am entitled to ask "What is DCG doing with the money?" If there is no satisfactory explanation forthcoming, I always have the option of advising the Minister of Communications through my local Federal MP that I will be expressing my opinion of his Department in the ballot box at the next Federal election!

Yours faithfully,

**WD Lirac VK5WV,
7 Terrace Avenue,
Flinders Park, SA. 5025.**

As a fully paid up member of the WIA, I feel qualified to comment on your editorial in the May issue of AR. I have not been a radio amateur for very long but have quickly developed a passion for the hobby. My own particular financial circumstances dictate that the demands of three young children at primary school, a mortgage, etc, take precedence over my desires to achieve "state-of-the-art" in radio technology. My subscription payment is solely derived from a pre-loved FT101B, a home-brew QRP (thank you Drew Diamond) and three vee dipoles at 30 feet. I can sympathise with others in a similar position who find it hard enough to find the annual licence fee, never mind the WIA subscription.

In my spare time I have started a radio club at the school where I teach and been involved in running a JOTA station. I know only too well that the barrier these interested youngsters meet is financial. Parents are only too keen to finance a computer to assist their children's education but see little worth in helping to buy a transceiver. If it is the true desire of the Institute to attract and encourage new blood into the fraternity and achieve a representative membership, it is high time the financially secure considered those in a different position.

Might I suggest that the membership subscription be purely nominal, say \$5 per annum — hopefully enough to cover the costs of registration. Thereafter, members to subscribe to a range of other services such as the journal, *Amateur Radio*. Surely it is highly desirable that many more amateurs join the WIA even if they look over someone else's shoulder to read AR. With increased membership, the negotiating stance of the organisation would be enhanced and it could truly call itself a representative body. Additional services could be offered particularly attractive to the young and less financially secure. How about each State running a surplus parts pool? I'm sure a garage somewhere could be used to store and recycle all those surplus goodies sitting redundant in the junk box. As an option, members could subscribe to a quarterly newsletter listing items that could be there for a nominal service charge on the return postage.

WIA Executive, what is needed is a great deal of lateral thought and not an attempt to shame and embarrass those whose financial situation precludes them from the organisation. The public at large needs re-assuring that amateur radio is a hobby for all regardless of race, colour, creed or bank balance.

Yours sincerely,

**Steve Curtis VK3CAX,
13 Barakoe Drive,
Somerville, Vic. 3912.**

Your May Editorial has no doubt interested to those who read it, but how many of the "offenders" do you really think would read it and react favourably?

I would suggest that a more positive approach be made to those people by the WIA, and journal space be devoted to more important factors which are eroding amateur radio and hence WIA membership.

Why are an alarming number of members failing to renew subscriptions? In my opinion they are disillusioned re the present scene. Amateur radio was established as a scientific hobby. Today it is becoming a farce.

For instance, what is being done to combat the posers and lackies of the man-factors, retailers and advertisers who are "ripping us off" with the promotion of "black boxes" and denying us the supply of certain components required to construct projects presented in the journal?

What is being done at basic operator-training level to educate aspiring operators in simple factors pertaining to the man-relations, and "on-the-job" education? I could go on and on to list many more factors which are degrading amateur radio.

Our hobby is being corrupted by commercial interests and selfish ignorant people. None the less it will continue long after any possible demise of the WIA. If you wish amateur radio to continue and members to remain financial please fire a heavier salvo with the medium at your disposal.

There are probably thousands of members sharing my concern re this matter. It is not simply a case of "How much is the Wireless Institute worth?" It is a case of "How much is amateur radio worth?"

Restore amateur radio to its original concept and the "black sheep" will flock back to the treasury to once again enjoy the journal, other WIA facilities and the true spirit of amateur radio.

Yours faithfully,

**Maurie Dewhurst VK8PMD,
4 Hawke Street,
Linden Park, SA. 5068.**

EXCELLENT SUGGESTION

With reference to AR, May 1987, the following comments:

1. Page 47, *Pounding Brass*, excellent suggestion Gil, but a low licence fee should be applicable, I only to prove "the value for money" they are getting.

2. Page 51, *Frequency Hopping*, I am sorry, but the RSA (Republic of South Africa) Armed Forces were one of the first, if not the first, to employ this method of communications. The first I read about it was some seven or eight years ago.

3. Pages 1-64, very interesting issue, keep it up.

73 de

**John Aarss VK4QA,
PO Box 211,
Nambour, Qld. 4560.**

Silent Keys

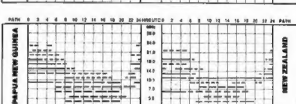
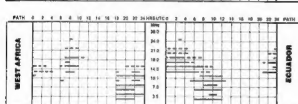
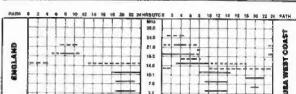
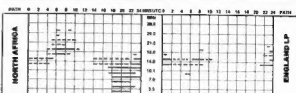
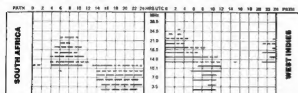
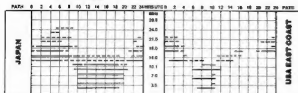
It is with deep regret we record the passing of —

**MR I S GRAHAM
MR B B HADJIDGE
MR T D ACKENBY
MR A R S ANDERSON
MR RAY JONES
MR DONALD LONGFIELD
MR G W MALLONS**

**VK4QO
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LA4017
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L30516
VK3JWW**

Ionospheric Predictions

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



LEGEND
From Western Australia (Perth)
From Eastern Australia (Canberra)

Mixed mode dependent on angle of radiation (long broken lines)



Better than 50% of the month, but not every day continuous use



Less than 50% of the month (short broken lines)

All paths unless otherwise indicated; (L.P. = Long Path or Short Path).

Predictions are presented courtesy of the Department of Science, IPS Radio and Space Services, Sydney.

Solar Geophysical Summary



QSP

—MARCH 1987

SOLAR ACTIVITY

Solar activity was low with no energetic flares being observed, though an important type was observed on the 13th. The sun was without spots on 12, 13 only. At other times, there were a number of small sunspot regions visible on the solar disc.

The 10 cm flux values ranged from a low on 70 (12, 13th) up to a high of 76 (8th). The monthly averaged value was 74, the highest since November 1986, reflecting the increase in the number of days with visible sunspot regions.

The abundance of 'new cycle' regions in the last few months make it very likely that we have already passed the solar minimum. If so, then it is likely that the minimum occurred in October or November last year. The yearly averaged value sunspot number for September 1986 was 12.4.

The yearly averaged value should again drop in October and perhaps November. The monthly average sunspot number was 14.8, the best also since November 1986.

GEOMAGNETIC ACTIVITY

March was more disturbed than recent months with a number of disturbed days. Most were fairly weak; the most disturbed day was the 27th when the A-index reached 25.

Solar activity increased quite dramatically over the period April 5 to 24 with the 10 cm flux figures reaching 101 on the 11th. Band conditions were extremely good for over two weeks going down after the 24th.

—Extracted from Solar Geophysical Summary as supplied by the Department of Science IPS Radio and Space Services

COMPUTER HAND SIGNALS

SOME PEOPLE LIKE to talk with their hands. Now you can use your hands to talk to your computer, using an electronic glove and ultrasonic sound.

The theory, apparently, is that the hand is quicker than the mouse, the small roll-around devices that correspondingly move a pointer on the computer screen. When you are pointing to what you want, a click of a button triggers it.

The new glove is wired with sensors that can tell when each finger clenches, and with two ultrasonic transmitters, like those used in many television remote controls. A receiver attached to the computer can follow the position of the glove in three dimensions.


The Z-Glove is available in three sizes for left or right hand use. The first model was only available for Commodore 64/128 versions, but an IBM PC version is believed to be coming.

Perhaps some day, this will be the only way to beckon our robot dog! 11

—Adapted from Gernsback's Outlook, February 1987

Coaxial Cable Specials

Low Loss VHF/UHF Coaxial Cables


Description	Trade & U.L. Type Number	AWG (Stranding) Dia. in./in. Nom. D.C.R.	Insulation & Nominal Core O.D.		No. of Shields & Material Nom. D.C.R.	Nom. Imp. Ω	Nom. Vel. of Prop.	Nominal Capacitance		Nominal Attenuation				
			Inch	mm				pF/ft.	pF/m	MHz	dB/100 ft.	dB/100 m		
	9913 80C	9/16 (Solid) 108 bare copper 90/11 M 2.95 Ω /km	Semi-solid Polyethylene		Ductbond II [®] + 88% tinned copper braid 1.8 Ω /M 6.0 Ω /km 100% shield coverage	50	84%	24	78.7	50	0.9	3.0		
			.285	7.24						100	1.4	4.6		
										200	1.8	5.9		
										400	2.6	8.5		
										700	3.6	11.8		
										Black PVC jacket.		900	4.2	13.8
												1000	4.5	14.8
												4000	11.0	36.1

BELDEN 9913 low-loss VHF/UHF coaxial cable is designed to fill the gap between RG-8 to RG-213 coaxial cables and half-inch semi-rigid coaxial cable. Although it has the same O.D. as RG-8/U coaxial, it has substantially lower loss, therefore providing a low-cost alternative to hard-line coaxial cable. Your special price from ACME Electronics is only \$4.84 per metre.

BELDEN Broadcast Cable RG-213/U MIL-C-17D is only \$5.23 per metre, or BELDEN 22385 YR Commercial Version RG213, the same specification as RG267, for only \$2.14 per metre. *Prices do not include Sales Tax.

For more information about the above, or any other BELDEN cable, simply contact our resident amateur radio operator, Colin Middleton (VK3LO) or our sales department.

Coaxial Cables

Description	Trade & U.L. Type Number	AWG (Stranding) Dia. in./in. Nom. D.C.R.	Insulation & Nominal Core O.D.		No. of Shields & Material Nom. D.C.R.	Nom. Imp. Ω	Nom. Vel. of Prop.	Nominal Capacitance		Nominal Attenuation																		
			Inch	mm				pF/ft.	pF/m	MHz	dB/100 ft.	dB/100 m																
	8267 1354 60C	13 (7x21) .089 bare copper 1.87 Ω /M 6.1 Ω /km	Poly-ethylene		Bare copper 1.2 Ω /M 3.9 Ω /km 97% shield coverage	50	66%	30.8	101.0	50	1.6	5.2																
			.285	7.24						100	2.2	7.2																
										200	3.2	10.5																
										400	4.7	15.4																
										700	6.8	22.6																
										Black non-contaminating PVC jacket.											900	8.0	26.3					
																					1000	8.9	29.2					
																					4000	21.5	70.5					

RG-213/U MIL-C-17D

RG-213/U
MIL-C-17D



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